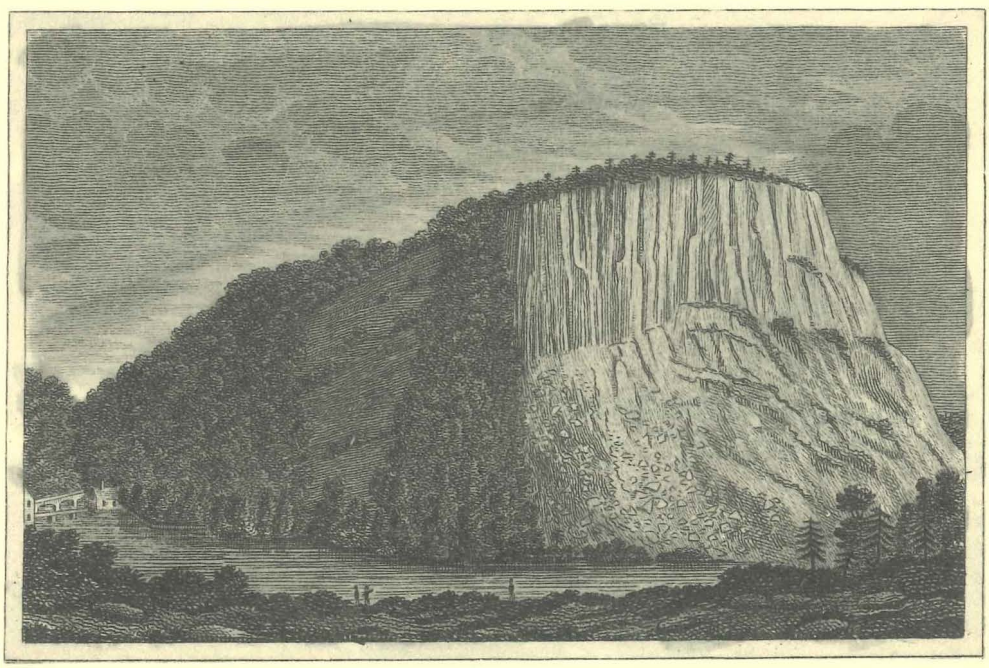
New Haven
A Topographical History

Floyd M. Shumway and Richard Hegel

Published in commemoration of the 350th Anniversary of the European settlement of New Haven



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Cover: The west side of East Rock in 1825 by John Warner Barber, showing part of Eli Whitney's gun factory at the left.

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THE NEW HAVEN COLONY HISTORICAL SOCIETY was founded in 1862 by a representative group of New Haven citizens. As stated in the Constitution adopted by the Society, revised in 1965:

"The object of the Society shall be the collection, preservation and publication of historical and genealogical matter relating to the early settlement and subsequent history, especially of New Haven and its vicinity, and incidentally of other portions of the United States."

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THE NEW HAVEN COLONY HISTORICAL SOCIETY

New Haven, Connecticut, 1988

CONTENTS

	Introduction	3
1	The Basic Topography	3
2	The Puritan Settlement, 1638–1700	11
3	From Puritan Settlement to Seaport City, 1700–1800	18
4	From Seaport City to Pioneer Industrial Center, 1800–1865	24
5	The Halcyon Days of Manufacturing, 1865–1945	37
6	Decentralization, Decay, and Renewal, 1945–1988	49
7	Epilogue	56
	Bibliography	59

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Introduction

This book describes New Haven's basic topography as well as the topographical changes occurring since the city's settlement by Europeans in 1638. The study encompasses the area's physical features and relief and includes natural as well as man–made elements. It also examines man's influence on the topography and its influence on man. It is surprising that there has not been a previous survey of the subject, because local topographical modifications have had a strong influence on the development of New Haven.

The geographical area examined is that within the present corporate boundaries of the City of New Haven. The borders of today's city are the same as those of the combined city and town of almost a century ago. The boundaries of the Town of New Haven as it was in the mid–seventeenth century would include all of today's Greater New Haven, a tract too large for a study intended to focus on the modern city. While the emphasis is on New Haven, important influences outside the present city limits are not ignored.

Within New Haven's corporate boundaries lies the southern terminus of the central lowland of Connecticut. The New Haven plain is situated between hills on both the west and east with ridges or hills to the north. The plain is of river flood origin. Today three rivers, the West, the Mill, and the Quinnipiac, cut the plain, all flowing into New Haven harbor. The central plain facilitated settlement, transportation, and agricultural development. The early town could expand with ease. New Haven's harbor and its tributaries expedited waterborne transportation. Its harbor is both a commercial and recreational asset. New Haven's hills do not divide or segment the plain in any significant manner. They did not nor do they now impede development, but they provide a welcome contrast to the broad central plain.

1 The Basic Topography

The valley in which New Haven is located is a unique spot in New England. As one authority, Richard D. Little, puts it, it is one of the few places in the world where such diversity, "the genealogy of the life and landscape of the Connecticut Valley back almost one billion years,"* can be seen in so small a geographic area.

In early geological times, during the Triassic period two hundred million years ago, an enormous north–south depression extending from the shoreline to Massachusetts developed in Connecticut. A large tract of rock dropped below the level of the surrounding area, a kind of action that creates what is known as a fault and is often referred to as a trench fault or downdraped block of the earth's crust. In this

**Dinosaures, Dunes, and Drifting Continents: The Geohistory of the Connecticut Valley* (Greenfield, Massachusetts: Valley Geology Publications, 1984), p. 4.

way the central valley lowland of Connecticut was created. It occupies a belt up to twenty miles in width and is essentially a lowland in late maturity.

Rain washed large amounts of sand and other matter into this central valley. Then volcanic action spread thick layers of lava on top of that material. Washed sand, clay, and gravel then spread over the area, this time on top of the cooled lava. Then the process repeated itself. The volcanic lava came up from below and along the cracks of the original fault. Such cooled lava is generally known as basalt, but in Connecticut it is called traprock.

As time passed the sides of the valley created by the fault pressed inward toward one another. This movement broke up layers of traprock into sections that then tilted, some traprock segments being forced upward through the earth's surface. New Haven's West Rock and East Rock are prominent traprock outcroppings.

In this central valley lowland there remained basically three kinds of rock: sandstone, shale made from clay, and traprock. Sandstone was the softest of the three, and water running over it carved out some big ditches and thus created rivers. The traprock was left mostly in the form of a series of long ridges and hills.

The derivation of *trap* in the word *traprock* is not clearly understood. Three times during the continuing deposition of layered beds of sediment in the Connecticut lowland molten lava welled up through the sediment and either hardened before reaching the surface as intrusive lava or flowed out over the surface as extensive lava sheets, to be later covered by additional sediment. Although there is no absolute proof, it is generally believed that the term *traprock* refers to the fact that some of the molten lava was trapped between the sedimentary layers.

One local story, however, maintains that *trap* is a misspelling of *trapp*, the Swedish word for steps or stairs. The Sleeping Giant ridge extended westward in a slope that was gradual but so high that it blocked all forms of north–south transportation except foot traffic through the Mount Carmel section of Hamden along what is now Whitney Avenue. There is an account that Swedish workers were brought there early in the eighteenth century to cut a notch through what was known as the Steps, immediately west of present–day Sleeping Giant State Park, by removing large blocks of basalt. This defile was later further expanded to make way for a road, then a canal, and ultimately railroad tracks, until today there is little evidence that there was ever a barrier there. There is no real evidence about the Swedes and their word for steps.

The central valley lowland with its mixture of sandstone, shale, and traprock runs southward through the state to New Haven. The Connecticut River itself, however, now leaves the central valley lowland at Middletown and makes its way in a southeasterly direction to Old Saybrook. It is believed that concentrations of resistant basalt lava at Middletown probably forced the river to change its initial southward flow and switch over to the route taken to Old Saybrook by the original Farmington River. Indians would have been unimpressed by this theory because, according to one of their legends, the Connecticut River turned east at Middletown after the giant Hobbomock stamped his foot there.

With the coming of the ice age a glacial sheet flowed southward through Connecticut, passing over the hills and ridges in its track. When it attained its furthermost southern point of advance, all of Connecticut was covered, the edge of the ice lying along Long Island Sound. The glacial flow is estimated to have been approximately twelve hundred to fifteen hundred feet thick along the shoreline. The weight of advancing glaciers depressed land areas, and the sea level was also lower than it is now. The ice flow pushed ahead of it or incorporated into itself the loose material in its way. Some rocks became frozen into the lower levels of the flow. As the ice moved, these rocks helped smooth down or cut the earth's surface, and some surface areas were changed. We should remember that all of the larger ridges, hills, and valleys were in place before the glacial age.

Glacial movement also created drumlins, elongated hills or ridges formed from debris or fragments of rock pushed along and compressed by the moving ice. Containing large amounts of boulder clay or glacial sand or gravel, a drumlin's long axis is parallel to the direction in which the ice flowed, and the back slope, once driven by the ice, is normally steeper than the front slope. An example of a drumlin is Beacon Hill, near the harbor on New Haven's east shore.

Melting glacial ice produced great rivers of water. These cut the valleys deeper and carried and later deposited large quantities of clay, sand, and gravel as they moved toward the sea. Some lakes were created. Clay used in making bricks is found in many parts of the Quinnipiac Valley, and there are also sand and gravel deposits in the area. Off the shore, the New Haven Outwash Delta is a sandy bank formed by material deposited by melting glaciers. There appear to have been two glaciations.

Erratic boulders, consisting of rock that differs from the bedrock underlying them, are scattered throughout the New Haven area. Some lie free on the surface, while others are partly embedded in the soil. The term describes all rocks plucked from their parent ledges and moved to new locations by glacial action. They lie where they were dropped when the glacier melted out from under them. Around New Haven these boulders came from exposed ridges or ledges that lie north and northeast of their present locations. Judges' Cave atop West Rock is a formation of erratic boulders or more probably one large erratic boulder that split.

After the glacial age the land was bare of vegetation, and the surface was covered with mud and rocks. The passage of time brought the return of vegetation, birds, and animals.

In summary, the central valley lowland is quite low and generally level. Within the valley are a number of traprock ridges. The remaining rocks are largely sandstone and shale. The broad lowland areas are underlain chiefly by glacial gravels above which project trap ridges and subdued sandstone and shale hills. The Connecticut River flows through the northern two–thirds of the Connecticut central valley lowland, breaks away from the valley at Middletown, and crosses the eastern upland in its route to Long Island Sound. Most of the marshes along the

shore are tidal marshes that are a result of the most recent postglacial rise of the sea level.

New Haven and its harbor, fed by the West, Mill, and Quinnipiac rivers, are at the base of the central valley lowland. The harbor is a broad estuary facing Long Island Sound, with an opening more than four miles wide. Inasmuch as the coastal area is comparatively level, it provided a surface facilitating early settlement and transportation. Long Island cuts New Haven off from the open sea.

New Haven and its harbor are part of the Connecticut River Housatonic Drainage Basin, which extends from Canada near the international border in a southerly direction to Long Island Sound. The city and harbor also lie within the Connecticut South Central Coast Major Drainage Basin and are in its Western Regional Complex.

The basic topography of New Haven can be described as a generally flat central plain that is slightly above sea level and contains some moderately rolling terrain and hills to the west, north, and east. The city is located at 41°18′ north latitude and 72°54′ west longitude. The mean elevation in the central plain is twenty–five feet. The central plain, exclusive of fill areas, is composed of New Haven outwash sediment, a combination of sand, gravel, silt, and clay with cut–and–fill stratification. With reference to productivity the soil is rated fair to poor and is predominantly reddish in color. The underlying bedrock is traprock. There are traprock formations on the municipality's outer reaches: West Rock, Pine Rock (or what is left of it after extensive quarrying), Mill Rock, East Rock, Indian Head, and Snake Rock, then a drumlin at Beacon Hill on the east shore, and then another traprock formation, Forbes Bluff, in the east shore's Nathan Hale Park.

The New Haven plain is cut by the West, Mill, and Quinnipiac rivers. Rocks in this glaciated area and an acid soil impeded early agriculture. The land rises to hilly sections to the west of West River and to the east of the Quinnipiac River and the harbor. The Beaver Hills are southeast of West Rock, and Prospect Hill is south of Mill Rock.

Over the years there has been a gradual natural and man–made filling in of the harbor, the most extensive being the modern–day Long Wharf project on the western shore. This topographical process is described step by step in the chapters that follow.

New Haven's ridges, hills, harbor, rivers, and other natural features are for the most part just as outstanding topographically today as they were in the seventeenth century. West Rock, oriented on a more–or–less north–south axis, is the southern terminus of a succession of ridges and hills ranging northward to Massachusetts. As mentioned earlier, it is a traprock formation. Its southern face, 405 feet in elevation, rises almost vertically as a naked precipice. On another, less precipitous side it reaches the impressive elevation of 670 feet. Some early English settlers called it Providence Hill, believing it to be a god–sent windbreak against winter storms.

The well–known Judges' Cave is located near the top of West Rock. During the early 1660s it was the hiding place of the regicides Whalley and Goffe, who had been among Charles I's judges. The cave consists of a group of large, glacial erratic boulders fifteen or twenty feet high positioned a little below the top of the ridge.

Pine Rock was a smaller traprock formation similar in appearance to West Rock and contiguous to it. It was a spur of West Rock running off at a right angle in an easterly direction from its southern end. Pine Rock faced south, as does West Rock, and was 271 feet in elevation. Doomed by the large commercial demand for traprock, it has by now almost disappeared due to quarrying operations.

The Beaver Hills are small heights south of the Pine Rock location in the northwestern part of New Haven, and they have 100–foot elevations at their highest points. They are till formations, compact, nonsorted sediment deposited by glacier ice. Included are small bodies of stratified sediment.

Beaver Pond Meadows, also called Beaver Ponds, directly east of Beaver Hills, is the only natural pond area in New Haven. This depression in the New Haven plain is a narrow but deep peaty swamp whose bottom is below sea level. In the nineteenth century it was described as being a mile and a half long and up to a quarter of a mile wide, but prior to that time it may have been somewhat larger. Today it is smaller due to filling, and as time goes on it becomes more of a meadow than a marsh. The sides of the depression are fairly abrupt, and they rise to the level of the dry, sandy terrace above.

East Rock is located in the northern part of New Haven, about three miles east of West Rock. The traprock formation is oriented in a north–south direction, and together with its satellites it forms the southern terminus of a separate series of hills and ridges running north to Massachusetts. Its highest elevation is 359 feet on the southern side, and like West Rock it is sheer on that side. Its position, too, is similar to that of West Rock and likewise helps to temper winter storms.

New Haven's sentinel rocks, West and East, have other qualities in common. Their whaleback shapes and steep southerly cliffs result from the sustained direction of the glacial ice flow. Their satellite rock formations share the same general characteristics. Both rocks have considerable iron in their makeup, and as weather causes gradual decomposition, rust covers the exterior of the stone, creating the reddish brown look that the Dutch noticed in 1614.

Mill Rock in southernmost Hamden is a traprock satellite of East Rock located to the west of East Rock's northern end, near the foot of Hamden's man–made Lake Whitney. It is 200 feet in elevation at its highest point and runs in an east–west, transverse direction.

Prospect Hill, which has also been called Sachem's Ridge, Sachem's Hill, and Mount Pleasant, covers a tract of approximately four hundred acres and runs in a southerly direction as far as Hillhouse Avenue about half a mile from the Green. It is 160 feet in elevation at its highest point, and it is a formation of glacial till.

Hamden's Whitney Peak, 290 feet in elevation at its highest point, is the eastern extremity of the Mill Rock traprock series, and it is located to the north of East Rock.

Indian Head, located to the east of the south end of the main part of East Rock, is like a smaller edition of East Rock, with an elevation of 320 feet at its highest point. South of Indian Head is Snake Rock, with a maximum elevation of 200 feet. Indian Head and Snake Rock are traprock formations.

Beacon Hill, east of Townsend Avenue on the eastern side of the harbor, is, as we noted above, a drumlin, easy to approach from all directions and having a maximum elevation of 200 feet. Its name derives from the use of the site during the Revolutionary period for a beacon fire that acted as a warning of British invasion. The summit provides a fine view of the harbor and adjoining land, and for this reason some people called it Prospect Hill. It has also been known as Fort Hill and Indian Hill because there was once an Indian fort there. In the early 1600s the Quinnipiack tribe cleared some of the forest off the top of the hill and used the open space as a lookout and signal fire location from which to attract European vessels to trade. There is an Indian burying ground on the eastern slope.

Immediately to the south of Beacon Hill is Raynham Hill, with a 190–foot elevation. South of Raynham Hill is Brightview, an area with 50–foot elevations just north of Morris Cove and overlooking the cove itself.

Also located on the east side of the harbor is Black Rock, an offshore basaltic rock formation north of Morris Cove and immediately to the west of present–day Fort Nathan Hale Park. In the 1650s the colonists mounted a defensive battery there, and it was subsequently the site of other fortifications during the American Revolution, the War of 1812, and the Civil War. Another offshore formation, also called Black Rock, lies to the south of the fortification site and northwest of Forbes Bluff in the northern Morris Cove area.

Because the founders of New Haven wanted to establish an important commercial center, they located their settlement on a large harbor from which they hoped to trade along the coast and also to the West Indies and Europe. The place they selected did not live up to their expectations in all respects. The harbor was shallow, and sailing vessels found it difficult to negotiate the long channel. The extensive salt marshes and mud flats were a further complication, and the channel tended to silt up. Then, too, there could be no straight–line sea–lanes between New Haven and Europe because Long Island was in the way and forced ships to go around two sides of a triangle.

On the other hand, the harbor did have some advantages. It was big, four miles long on the north–south axis and varying from one to two miles in width. Its location behind Long Island offered protection. Although it was shallow, there was a seven–and–a–half–foot channel at mean low water during the 1600s, which was sufficient for ships of the period, and there was enough depth in the northwestern part of the harbor for all ordinary commercial purposes. Today the main channel depths vary from thirty–five feet at the harbor entrance to twenty–six feet in the inner and upper harbor.

Other benefits resulted from the location. Based at the southern end of the Connecticut Valley, the harbor had an interior that was fertile by New England

standards, and navigable rivers made it easy to bring agricultural produce to the waterfront for shipment to other markets. Oysters, found on all sides of the harbor, provided an abundant food source in the early days, and their presence explains such place–names as Oyster Point (now City Point) and Oyster Shell Field (now Wooster Square), where the Quinnipiack Indians had habitually dumped the mollusks' shells.

New Haven's waterfront geographical features include Sandy Point, which projects from the West Haven shore south of City Point. Crane Bar once protruded from the eastern shore of the harbor to the west of Beacon Hill, but modern–day harbor development has removed it. Further south on the eastern shore is a traprock ridge, Forbes Bluff, which is located immediately southeast of present–day Fort Nathan Hale. It is about 70 feet in elevation at the highest point. South of Forbes Bluff is Morris Cove, called Solitary Cove until the eighteenth century. Southwest of Morris Cove is Lighthouse Point, which at various times has been known as the Little Neck, Morris's Neck, Morris Point, and Five Mile Point.

Indians once had a settlement at Oyster Point on the west side of the harbor, where they may have harvested oysters and where they certainly left the immense deposit of shells that gave the place its original name. They also harvested clams, oysters, and fish from nearby Sandy Point. When the English arrived, they used these spots for oystering and fishing, but during the seventeenth century few if any people lived there. The shoreline of what today is City Point has been somewhat modified in recent decades by fill from the adjacent Long Wharf project to its north.

At the time of settlement there were three rivers, the West, Mill, and Quinnipiac, flowing into the harbor, and two creeks, West and East. The rivers remain, but the creeks have disappeared. West Creek is now the location of a highway, and a railroad track bed covers what was once East Creek.

West River, a depleted millstream that was once a large estuary, has its origins in four communities, being fed by Beaver Pond in New Haven, Konolds Pond and Lake Dawson in Woodbridge, Lake Watrous in Woodbridge and Bethany, Lakes Bethany and Chamberlain in Bethany, and Lake Wintergreen in Hamden. It meanders in a generally north–south direction through salt meadows in the western part of New Haven. During the early colonial period these meadows extended three miles inland from the harbor.

West Creek flowed from what is now the Broadway area past the intersection of present–day Chapel and Park streets and then curved so that it ran parallel to George Street. In the seventeenth century there was a considerable bay where it entered the harbor. What was once the lower part of the bed of this stream is now covered by the Oak Street Connector. West Creek was navigable by small craft all the way up to George and York streets, and in early times vessels of considerable size unloaded at College Street.

East Creek came down from north of the Grove Street Cemetery location and then ran parallel to State Street. Boats were able to come up as far as Elm Street. West and East creeks were the main centers for maritime activity because they

could accommodate larger ships at high tide and the harbor gave protection from Long Island Sound.

The Mill River, another depleted stream that was once a large estuary, rises in Cheshire, flows between Mill Rock and Whitney Peak, and then meanders through salt meadows close to the base of East Rock, continuing in a generally north–south direction to the harbor. There is geological evidence that it may once have flowed north of Mill Rock toward the west through Pine Marsh and then diagonally across to Beaver Pond Valley and West River. New Haven town records indicate that there was a gristmill on the river as early as 1642 in the Whitneyville section of present–day Hamden near the New Haven line; this explains the name Mill River. It was an excellent stream for powering the mill, as it carried a plentiful supply of water the year round.

The Quinnipiac River is still another depleted stream with extensive salt meadows that was once a large estuary. It rises in Dead Wood Swamp, a red maple marsh in Farmington, and flows in a generally north–south direction. The river's course is irregular, and an Indian legend contends that its many sharp bends were created by a big dragon who wandered through the salt marshes and, eventually finding himself unable either to advance or retreat, died amid the clay banks and cattails. Eventually its huge carcass sank, and water rushed in from the bay to form the river. The Indian name Quinnipiack, meaning "long water," was initially given to this body of water, but during the early period it was at various times also known as Dragon or East River. Later it was called the Wallingford River but eventually regained its original name. In the seventeenth century it was navigable for about eight miles north from the harbor. The Quinnipiac joins the Mill River at the harbor's head.

In summary, New Haven lies at the base of the central lowland of Connecticut, which is a plain between ranges of hills on the west and east and with ridges or high hills to the north. Of river flood origin, the plain's surface is sand mixed with loam and gravel. In the seventeenth century there were no dense forests on this central alluvial plain except for Prospect Hill, and it was basically a flat stretch containing some scattered woods, particularly shrub oaks, and lots of meadows, swamps, and rocks. The ground rose generally to not much more than 50 feet in elevation, and its basic flatness facilitated local transportation.

There were exceptions to this pattern on the outer edges of what is now New Haven. The Woodbridge Hills, which were forested in the seventeenth century, begin beyond West River and reach elevations of 150 to 300 feet within the present city limits. Across town east of the Quinnipiac River there are elevations in the neighborhood of 150 feet.

New Haven's highly glaciated soil was difficult to work because of its stony character. Beneath the plain there was a plentiful supply of good water, which could be found at moderate depth. The early settlers assumed that the river valleys would be fertile, but they were doomed to disappointment. A seventeenth–century account noted, "The land very barren." In the nineteenth century the soil in the

southern part of the Quinnipiac Valley was described as "light and sandy." Essentially New Haven consists of sandy soil on a broad outwash plain with loamy soil in the elevated areas.

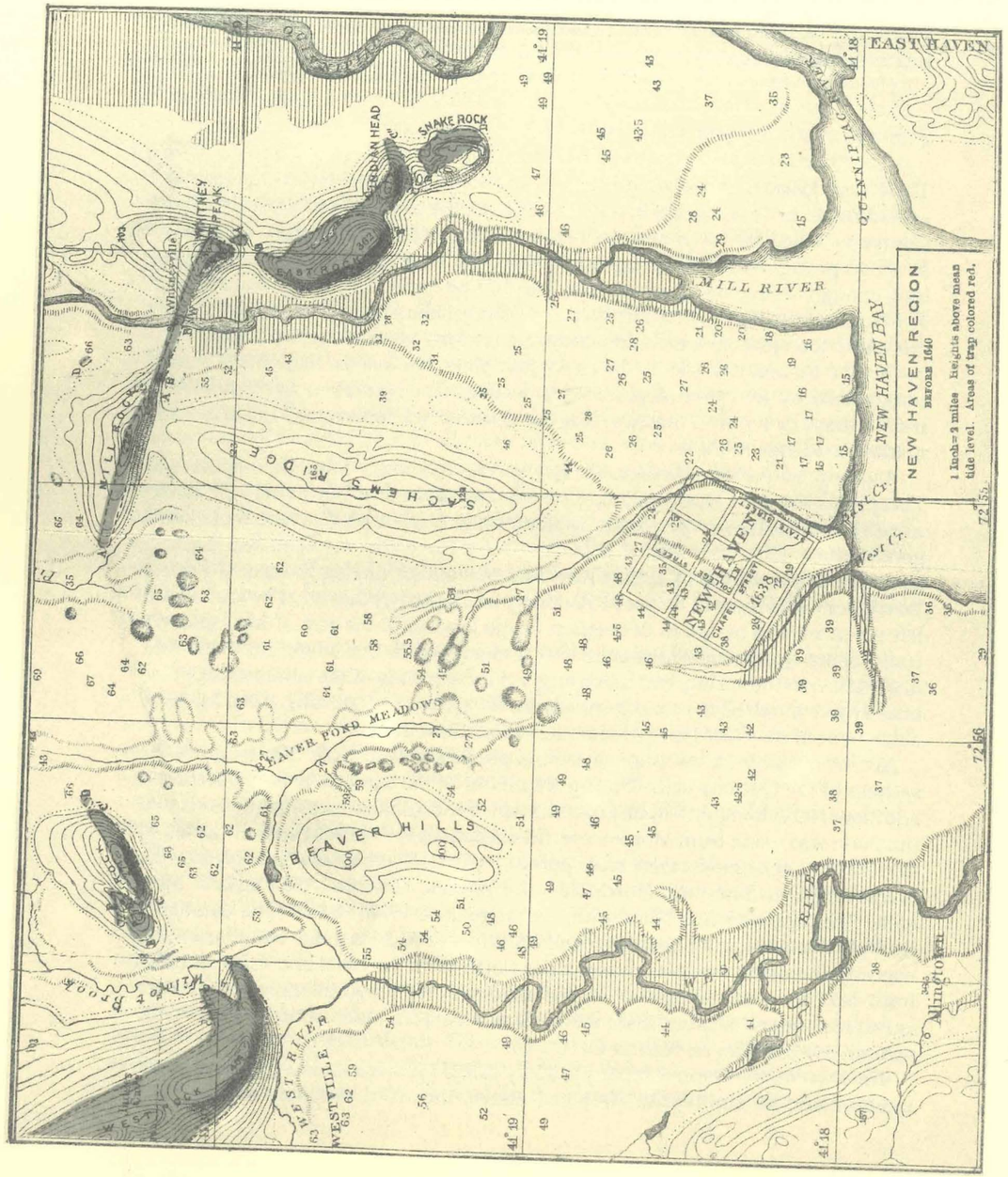
2 *The Puritan Settlement, 1638–1700*

The Dutch learned about New Haven's location some years before the English settled there. In 1614 Adrian Block, a mariner employed by the Dutch East India Company, sailed his forty–nine–foot *Onrust* into the harbor and gave the area its first European name, Roodeberg, for the red hills, West and East rocks. He stayed long enough to prepare a harbor chart, which is on deposit in the royal archives at The Hague. Possibly the first ship made in America, the *Onrust* was built by Block's crew after the vessel in which they had been cruising was mysteriously destroyed by fire at Manhattan Island. Prior to that time the harbor had been visited occasionally by European explorers and traders. The records of the Dutch West India Company for 1624 mention that the Quinnipiack Indians did not show any marked tendency to trade.

A group of Puritan immigrants led by the Reverend John Davenport and Theophilus Eaton, a wealthy London merchant, arrived in Boston in 1637 determined to establish their own separate community in some place where there was a good harbor. They soon heard about the New Haven area, which had made a favorable impression on Captain John Mason's troops during the recent Pequot War. Eaton went there in August with an exploring party, liked what he found, and left seven men to maintain possession of the land until the rest of his followers could come down from Massachusetts. Pioneering in the wilderness was best undertaken in the spring, and accordingly the main body of the colonists, approximately five hundred in number, sailed into the harbor on Saturday, April 24, 1638. Settlement of the New Haven Plantation dates from that day.

In November 1638, the English settlers purchased land from Momauguin, the sachem of the Quinnipiacks. During December of the same year they purchased additional land lying principally to the north of the initial acquisition. This second purchase was made from Montowese, the sachem of the Mattabeseck. Included in the two land agreements were all or part of present–day New Haven, East Haven, Branford, North Branford, North Haven, Hamden, Cheshire, Wallingford, Meriden, Prospect, Bethany, Woodbridge, Orange, and West Haven. The combined tract purchased from Momauguin and Montowese had irregular boundaries and was approximately ten to eighteen miles north from the coast and thirteen miles from east to west. Altogether it encompassed 110.8 square miles. In a later agreement signed in May 1645, the Indians secured a reservation of some 1,200 acres in the East Haven–Morris Cove area.

The Davenport–Eaton company initially called their settlement Quinnipiac, the Indian name for the region. As noted above, the word probably meant "long



From James D. Dana, *On the Four Rocks of the New Haven Region, East Rock, West Rock, Pine Rock and Mill Rock*, New Haven, 1891.

water" or "river place," referring to its location at the junction of the long water, the Quinnipiac, and its meadows with the harbor. According to another theory the word *Quinnipiac* means a trail changing its course or a junction of trails.

In 1640 Quinnipiac became New Haven by order of the General Court. This name possibly derived both from the town of the same name in Sussex, England, and from the fact that it was a new harbor, which could be thought of as a new haven. Interestingly, most Massachusetts towns received names with double meanings, designed both to recall some municipality back home in England and to say something about the location in the new land: *New Haven* seems to follow this practice.

The town of New Haven became part of the New Haven Colony, which was founded in 1643. This colony expanded until it eventually included Stamford, Milford, Branford, Guilford, and Southold, Long Island, making it a Puritan empire in miniature. At the same time it joined Massachusetts, Plymouth, and Connecticut in the New England Confederation. Its independent status did not endure, however, and in 1665 the New Haven Colony, including the town of New Haven, was absorbed into and became part of Connecticut.

The identity of the individual responsible for the design of New Haven remains a mystery. John Brockett, one of several land surveyors among the original settlers, has frequently been cited as the man who conceived the ground plan, and a drawing showing the town in 1641 is generally referred to as Brockett's Map. A very persuasive argument has been developed in recent years, however, that Brockett was probably "just the chap with the rod and chain tramping through the underbrush making measurements" and that some other as yet unidentified person thought up the long-famous layout.

The so-called Brockett town plan was half a mile square and was bounded by today's George, York, Grove, and State streets. This plot nestled between West and East creeks and was subdivided into nine squares of equal size. The central one was called the market place and in accordance with old English custom was reserved for public use. The other squares were laid out in house lots. There was no allowance for topography, the grid being imposed on the site. This was a strong, simple, orderly design and one for which there was ample precedent, since rectangular street layouts have been known since ancient times. New Haven was probably the first settlement in British North America to be laid out in an organized fashion, and its nine squares give it a high place among our nation's urban plans.

It has been argued that the nine-square design for New Haven was based on the layout of the Roman military encampment used by Julius Caesar and that the positioning of the streets was influenced by Vitruvius, a Roman author concerned with urban planning. Seeking to prevent the free passage of winds bringing cold and disease, Vitruvius advocated locating streets so that their buildings would break the force of the prevailing air movements. He arbitrarily assumed that breezes came from eight different directions, and he founded his designs on true north. The New Haven plan used magnetic north, which made it easier to execute.

A further theory is that biblical guidelines, models, and precedents served as prototypes for the planning of early New Haven. The community was possibly conceived of as a practical and physical demonstration of scriptural thought.

The use of deep blocks provided for open areas within the town. Streets crossed at right angles and were four rods in breadth. A tenth section went off at a diagonal between the creeks to meet the harbor, and there was a further division on the opposite bank of West Creek. There were also a few lots east of East Creek. A substantial amount of energy was consumed in the early years in laying out streets, constructing bridges, developing the port, and providing for a stable political structure. These were the years of initial organization.

The land comprising the New Haven Plantation was purchased from the Indians by the free planters, also called the proprietors, the individuals who had contributed toward the expense of the enterprise. The town's land was held by the proprietors, who had the responsibility of distributing it, of controlling development by deciding when and how much real estate should be divided up among the residents. The free planters were a group distinct from the town. They retained for themselves and their successors all claim to title to the soil of the market place and other common and undivided lands, as well as the right to determine what buildings might be erected on the market place. In 1685 the General Court of Connecticut gave the New Haven proprietors a patent, or exclusive grant, of authority to make distributions of common and undivided land. This act confirmed an existing right.

The first division of land, which was probably completed by 1641, allocated lots to proprietors in the eight squares and two adjacent suburbs. The size of each lot was determined by a formula that took into account both the family's size and its wealth. The wealthiest and most important people all settled in the eight central neighborhoods rather than in the two outlying ones. At the same time small free lots beyond the central area were made available to householders who were not proprietors, and a number of them took advantage of this offer.

In subsequent years other divisions of land were effected, all involving the partitioning of an area and distribution of lots in accordance with some formula. In this way most householders eventually found themselves in possession of holdings in several locations. Because it was often not practical to take care of scattered holdings, people began buying and selling lots and even swapping them in order to consolidate them as much as possible.

The first official reference to the market place, known to us today as the Green, appears in the town records on October 29, 1639. At that time the Green was an uneven wooded slope, slanting downward from west to east with the declivity considerably greater on the south side than on the north. The surface was rough and irregular, and there were many cobblestones scattered about on it. The rise to the west was later known as the College Street hill. The middle and eastern section was low and marshy, and alders and cattails grew in profusion, especially near the present-day intersection of Church and Chapel streets. From this swampy corner

flowed a small stream in a southeasterly direction emptying into East Creek. The Green was so boggy in some areas that it was ditched.

The Green occupies a fraction over sixteen acres. It was intended to be square, but the length on the College Street side is 828 feet, on Church Street 831 feet, on Elm Street 838 feet, and on Chapel Street 848 feet. In early times sand sifted across the tract with every storm. The Green was cleared slowly, and timber was still standing in 1639. By 1654 grass had been planted, and warnings were posted promising punishment of those who removed any of it for their own use. When New Haven united with the Connecticut Colony in 1665, the market place with its small, unpainted buildings was probably largely clear of trees, and it functioned both as a market center and as a place for military training. The Green is an open space that has through the years retained its early civic function. Unlike most central areas reserved for public use, it was never intended to be a common but has been simply a place without ownership, the true center of community life.

In England, burial grounds customarily had been located immediately behind churches, and that practice took root in New England. Accordingly the original New Haven burial ground, dating from the earliest years, was in back of the meetinghouse erected in 1640 near the center of the Green and its more durable replacement, which was built in 1670 on the same site.

The first shelters in New Haven constructed by Englishmen were probably cellars or excavations along West Creek. The colonists soon moved to houses in the squares in the town plot, and the West Creek structures were used thereafter by successive groups of early arrivals while their houses were being constructed. These cellars may not have been merely holes in the ground but actually high basements built against the bank of the creek. While they were used initially as temporary lodgings, it is thought by some that at a later date houses were erected on top of them. These cellars then became basement warehouses accessible to boats at high tide.

The several residential squares were never given official names, but in the earliest years four of them were called the Hertfordshire, Kent, London, and Yorkshire quarters because people from those parts of England had managed to obtain building lots near one another. Later several of the squares were known by the names of their leading residents. There was a Governor's quarter, honoring Theophilus Eaton, and other quarters were identified by the names of John Davenport, Thomas Gregson, George Lamberton, Robert Newman, and Edward Tench.

Initially the poorer colonists constructed rude houses, apparently with thatched roofs. These humble structures provided only a measure of comfort. There were no log cabins. New Englanders never built them, as hand-hewn lumber, not logs, was used for construction.

Those who possessed wealth built large structures, some of which were quite grand. There were stately early houses that were not inferior in size or in design to many English manor houses of the period. Some were pretentious dwellings of

framed timber with clapboards on the sides and shingles on the roof. They had large chimney masses, steep pitched roofs, and small window openings with leaded glass panes. Theophilus Eaton's house had at least ten rooms laid out in two full stories in a U-shaped floor plan. A solid foundation of capital underlay seventeenth–century New Haven, and the town was celebrated and sometimes criticized for its many stately and costly houses.

Early roads were merely rutted tracks used mainly by horseback riders, and the streets were not named until generations had passed. Later a series of radial roads ran out from the town plot to the fields, giving access to and also providing boundaries for private farmlands. Roads leading out of town were called lanes by the early settlers.

The founders of New Haven wanted to make it a major commercial city with an economy based largely on shipping. The harbor seemed to be more than adequate, and in those early days the waterfront was the focus of activity. The settlement's location between New Amsterdam and Boston suggested that coastal trade could be developed, and the merchants also hoped to bypass Boston and establish a direct sea route to England. The results were very disappointing, however, because there was no crop surplus or fur supply to export and because the presence of Long Island made the sea route to England longer than that from Boston. After the 1650s New Haven, therefore, temporarily abandoned its seafaring ambitions and concentrated on farming. This was a practical move because there was ample pasturage to support the colonists' animals.

There was a strong feeling at the time of settlement that all the houses should be close together so that everyone could get to the centrally located meetinghouse easily and so that the Reverend John Davenport could keep a watchful eye on all of his flock. In the interest of security a stockade was built around the town, and because of fear of Indian attacks during King Philip's War more elaborate fortifications were erected in 1675, including trenches and earthworks. For these reasons New Haven was a very compact community. In spite of this density two distinct centers developed immediately, the economic axis fronting on the harbor and West and East creeks and the institutional nucleus on and around the Green.

New Haven grew, but it did so rather slowly. The original population of about five hundred increased to approximately eight hundred in 1643 and to almost nine hundred in 1670. Most of the inhabitants were, of course, English, but there was an occasional family from Europe. There was also a small black community, first mentioned in the New Haven town records of 1646. Seventeenth–century settlement in New Haven's outlying areas was minimal, but Wallingford attained sufficient size so that it was set off as a separate town in 1670.

The early settlers soon observed that the combination of the harbor's shallowness and an increase in the draft and tonnage of ships coming to New Haven made a wharf or wharves necessary. In 1663 Samuel Bache obtained a grant to build a docking facility out into the flats near the lower end of what later became Fleet Street. This road ran diagonally to the waterfront from the intersection of present–

day George and State streets. Jonathan Atwater subsequently acquired Bache's rights, and in 1682 Thomas Trowbridge received an adjoining grant to the east. The resultant construction marked the beginning of what grew eventually into Long Wharf.

What is now the upper State Street area became well known by midcentury for the salt hay that grew in the marshes along the Mill River as well as for its excellent pastureland. The plentiful hay was high in nutrients, and it was harvested by local farmers.

Neck Lane, part of which is today upper State Street, was in use by the early 1640s, making it one of the first access corridors running out of New Haven. It terminated in the Neck, the flat region between the Mill and Quinnipiac rivers. Early land divisions by the proprietors included assignments in the broad, fertile Neck, which became part of Fair Haven. Lots were also laid out on the east side of the Quinnipiac River.

A ferry path ran diagonally across the Neck plain from the northwest to its southeast corner, a vestige of which remains in the present–day course of Monroe Street. At the edge of the Quinnipiac River the path linked up with the Pardee ferry, chartered in 1650. It provided convenient transportation across the river for horses and for men. A small waterside settlement grew on the eastern shore around the landing.

What is now Fair Haven is located on both sides of the Quinnipiac River in the eastern section of the city. It was once called Dragon, but nobody is quite sure why. Some claim that this was because seals, called dragons by the early settlers, gathered in the area. Others say there was once a tavern there called the Dragon.

The earliest New Haven bridges were no doubt the one over the Mill River known as the Neck Bridge and the one spanning the West River where Columbus, Congress, and Davenport avenues now converge. The Neck Bridge was located where State Street crosses the Mill River. It is mentioned in the New Haven town records as early as 1641.

It is generally believed that New Haven's first two elms were planted on Elm Street near Temple Street in front of the Reverend James Pierpont's house when the members of his congregation gathered to present gifts and furnish their pastor's house. These elms are shown on Wadsworth's map of 1748, where they are referred to as "trees planted in 1686." One of them remained standing until 1825 or 1839.

By the end of the seventeenth century Puritan Englishmen had firmly penetrated the New Haven wilderness. The history of today's central New Haven during this century is the history of the early town itself. What New Haven residents now think of as downtown was the tract occupied by the original settlement.

3 *From Puritan Settlement to Seaport City, 1700–1800*

In the early part of the eighteenth century the settled part of New Haven extended primarily from today's York and Grove streets to the water. The population of this, the most compact section, was estimated at seven hundred. The area between York and Church streets was sparsely inhabited, although the Broadway area was a commercial focal point. The main business center was along and near the waterfront, especially State Street. New Haven then had much the character of a village. In 1701 it became the co–capital of the Connecticut Colony along with Hartford, and it remained so after independence.

In order to keep the saltwater out of the West River meadows a tidal gate and dike were constructed at the West River bridge in 1769. A gate suspended from the bridge was shut by the tide and opened by the stream as the tide ran out. This example of Yankee ingenuity made about 120 acres wholly or partially available for cultivation.

Although the water was deeper in West Creek, there were more landing places and wharves on East Creek because the majority of merchants had located their businesses near the latter body of water. As late as the Revolution West India traders discharged their cargoes from East Creek at the corner of Chapel and State streets. The area adjacent to East Creek at the intersection of State, Elm, and Union streets became the site of an early custom house, a post office, and various commercial houses.

During the eighteenth century New Haven's harbor was described as being unsuitable for large vessels, and in 1775 Ezra Stiles confirmed this by noting a channel depth of seven and a half feet at mean low water. One of the shoreline landmarks in the first half of the century was Greenough's Point shipyard, strategically located where there was fairly deep water in what was then called the winter harbor, which is in the northwest corner of the main harbor. Oystering was another important harbor activity. The principal wharf facilities during this century lay near the foot of Fleet Street, later State and Water.

By 1736 Long Wharf had been extended four hundred feet into the harbor. In that year it first appears to have been called Long Wharf, distinguishing it from the small docks in West and East creeks and from the smaller wharves on the shore of the harbor. Increasing trade created the need for deeper–water facilities, and in the 1740s it was further extended. Its proper name, as indicated in the company's books, was Union Wharf, but it was always known to the general public as Long Wharf.

During 1770 a group of New Haveners subscribed a sum of money toward the construction of an eighty–foot–square, platformlike pier at the west side of the channel. It was built a year later, and ships could thereafter unload at all levels of the tide. Large vessels really needed that advantage because the harbor was gradually silting up. This new pier was erected on soft mud but was made substantially of wood and stone. The center of it was not filled up for many years.

In 1772 an extension of Long Wharf out to the new pier, financed by a lottery, ushered in the great era for the merchants who did business there. The wharf was now New Haven's most important waterfront asset, and prior to the Revolution it was the only landing place available for public use. The war brought a temporary lull in maritime activity, and the British burned stores on Long Wharf during their raid in 1779, but trade revived quickly once hostilities ended. Another lottery then paid for further dock improvements. During the latter part of the century there was a marked and rapid increase in the use of the port, reaching a peak about 1800. The city had entered into the China trade by then and continued it in the years ahead. Trade with the West Indies and coastal trade to the southern states were also important.

Two spots overlooking the east side of the harbor were put to use for defensive purposes during the Revolution. A brushwood beacon was placed in 1775 on what was thereafter called Beacon Hill, to the east of Townsend Avenue in the neighborhood of present–day Fort Wooster Park. The next year Black Rock Fort, a small, square, open–air blockhouse, was erected on the flats below Beacon Hill. The beacon was lit in July 1779 to give warning of the British invasion, and the local militia made a brief stand there against the advancing enemy. The fort was abandoned and fell into disrepair after the war.

During the early eighteenth century, the market place, equipped with scales, a watering trough, and pens set out at regular intervals, was located in the southeastern portion of what we know today as the Green, but by 1770 it had moved south to the intersection of George and Church streets.

The term *Green* appears in an April 21, 1759, *Connecticut Gazette* advertisement of a house near it which was for sale. The usage indicated that the term by then was not an unfamiliar one, and after 1783 the previous designation, market place, disappears from public records. There seems to have been some hope that the town's central area might be called the Public or Great Square, both of which sounded more metropolitan and less rustic than market place or the Green. In the end people felt most comfortable with the last of these alternatives, and so we speak today of the Green.

Nobody worried much about beautifying the Green until near the end of the century. The ground sloped downward from west to east much more than it does now, and this allowed sand to wash along Chapel and Elm streets and pile up on the lower level of the square. The process did have a long–range benefit: the once–swampy depressed area gradually filled up and solidified. During the Revolution, the Green was filled with wagon ruts and covered with weeds and underbrush. It was unfenced, and geese, cattle, and swine roamed over it at will. Later James Hillhouse decided that something had to be done, and one of his most visible improvements was the leveling off of the lower section, which had previously risen in an uncontrolled way, resulting in a very uneven surface. He also did away with a winding cow path that had traversed the Green diagonally from the northwestern corner to the southeastern ever since the time of Eaton and Davenport.

To provide shade and a look of elegance and also to keep sand from drifting down the slope, some elms and sycamores were planted on and near the Green during the 1750s and again in the 1780s. This movement took on real momentum during the decade of the 1790s under the leadership of James Hillhouse and the Reverend David Austin. Many of the elms then set out came from Hillhouse's farm in Meriden. Concurrently attention was paid to preserving trees planted earlier, and in 1790 Pierpont Edwards and David Daggett were asked by the municipality to look into how best to care for trees all over the city.

The Franklin Elm was planted on the Green near the northwest corner of Church and Chapel streets on April 17, 1790, the day Benjamin Franklin died. It was brought down from Hamden and put in place under the direction of Thaddeus Beecher, who operated a store at that intersection. This memorial to a Founding Father was a familiar landmark until the early 1900s. Another addition to the Green was the wooden fence put up around it at the end of the eighteenth century.

The burial ground behind the First Church had been used by the entire community from the time of settlement, and by 1780 it had expanded to the point where it covered about fifty square yards and ran nearly to College Street. Recognizing that some action had to be taken to prevent the Green from being eventually consumed by the cemetery, in 1796 the farsighted James Hillhouse and a syndicate of thirty–one associates purchased an initial six acres on Grove Street and then added four more for use as a new public graveyard. Grove Street at the time was still in the country and was an ideal location for the purpose. The tract was soon leveled and fenced.

Grove Street Cemetery was granted a charter in 1797, issued to the Proprietors of the New Haven Burying Ground in New Haven. In addition to being the first regularly planned and laid out cemetery in the United States, it was the first in this country not only to use the corporate form of control but also to have family plots. From 1797, when the first burials took place at Grove Street, the use of the Green for that purpose gradually ceased. The last interment behind First Church was in 1812, and two years later eight more acres were added to the Grove Street Cemetery's original ten.

The Collegiate School relocated from Saybrook to New Haven in October 1716 and, using funds voted by the Connecticut legislature, completed a great wooden frame building in 1718 at the northwest corner of what later became Chapel and College streets. Henry Caner moved down from Boston to act as designer and contractor, and his creation, which was painted blue, lasted until 1782. This initial, all–purpose structure was called Yale College in honor of Elihu Yale, an early benefactor, and in time the name of the edifice became the name of the institution.

The establishment of an educational institution in New Haven created a new center of activity there and highlighted intellectual interests and aspirations. The town expanded around Yale's first building, complicating the college's future growth. Later, when Connecticut Hall, also partially funded by the colonial legislature, was erected to the north of the original building, it was set back from

College Street, and this retreat began the separation of town and gown. Other buildings soon followed, laid out in a line north from Connecticut Hall, thus creating the famous Old Brick Row. The wonderfully useful James Hillhouse played a role in selecting the locations for these structures, which may have constituted the first planned campus in the United States.

On January 8, 1784, the Connecticut General Assembly passed an act incorporating a portion of the Town of New Haven as the City of New Haven. At that time the town covered an area about ten miles from west to east by thirteen miles from south to north. Included within this old boundary were the sections that later became West Haven, part of Orange, part of Amity (later to be Woodbridge and Bethany), Hamden, North Haven, and East Haven. Approximately 8,000 people lived in what was then the town, including about 3,350 in the new city itself.

The newly incorporated city occupied about 10 percent of the old town's acreage. The city's boundaries ran from the West River on the west over to the Mill River on the east and from the Mill River meadows on the north down to the waterfront. Woodbridge was incorporated as a town in 1784, East Haven in 1785, Hamden and North Haven in 1786, and Orange at the late date of 1822. West Haven was separated as a town from Orange in 1921.

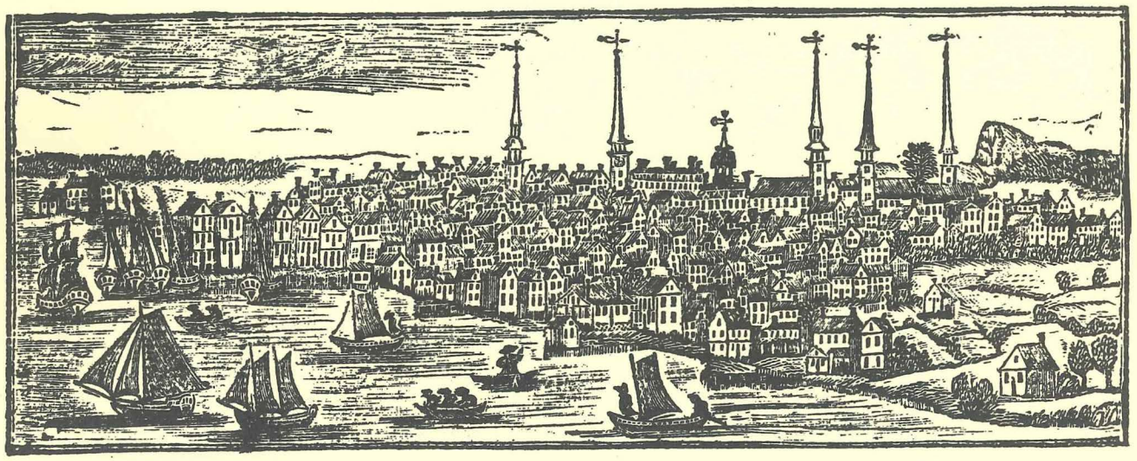
The population of the new city was concentrated largely in the original town plot, that is, the nine squares and the streets running to and adjacent to the harbor. The northern part of the city was the least fully inhabited, and other outer parts of the city were also sparsely settled.

Even with its new charter New Haven had the appearance of a small colonial town. The city had traded size for the advantages of a municipal charter. In addition to increased civic dignity the city government gained more clearly defined power to stimulate commerce and promote trade by improving wharves and roads. The city remained part of the old town, which was gradually shrinking in size.

The Episcopal church built in 1752 on the east side of Church Street just below Chapel Street was New Haven's first house of worship to have a steeple. In 1755 New Haven got its first post office, which was located at the Haymarket at State and St. John streets.

New Haven grew rapidly from midcentury until the Revolution, expanding particularly along the shore and to the east. Merchants built homes there facing the harbor, and new streets grew behind them. By 1775 people were referring to the section as the New Township, a name suggesting a sense of separateness and pride. This was, above all else, a new center of maritime activity.

The war halted New Haven's growing urbanism. Disaster was avoided in 1779 when the British invaders decided not to burn the town, to no small extent because Col. Edmund Fanning, a 1757 graduate of Yale and commander of the King's American Regiment of Foot, had an affection for the place. When the conflict ended, New Haven was still a small, quiet, semirural seaport town. In 1784 the dwellings continued to be made mostly of wood, many of them painted red or blue, with some brick ones and a few built of stone.



A southeast view of New Haven in 1786, which was used as the masthead of the *New Haven Chronicle*, 1786-87.

New Haven's central area and the adjoining waterfront contained in 1724 between 157 and 163 buildings of all types, including residential structures. In the same general area there were 200 or 201 dwelling houses in 1758, fewer than 400 in 1769, and 400 in 1784; in 1787 there were 466 houses, 103 stores, and 324 barns and shops. Public buildings were in the center of town, on the Green or very close to it, and much of the retail activity took place there.

The economy of New Haven at the beginning of the eighteenth century was based on its agricultural hinterland. Commerce, particularly seaborne trade, grew in importance as the decades went by and eventually became predominant. England did not allow manufacturing in its colonies, but after the Revolution a few small, rather primitive industrial operations took root in town.

Until New Haven became a city, its inhabitants had used descriptive terms to identify particular spots, for example, Cutler's Corner for the intersection of what are now Church and Chapel streets and Ditch Corner for Broadway. There were, however, no official street designations until 1784, when the municipal government bestowed names on twenty–one of them. The original nine squares were to be bounded by Grove Street on the north, George on the south, York on the west, and State on the east. Between Grove and George and running parallel to them were Elm and Chapel. Between York and State the parallel streets were to be called College and Church. The latter street was named for the Episcopal church on its east side south of Chapel. The name of Elm Street called attention to the trees planted there in 1686.

Bisecting of the original squares to create smaller and more practical blocks was begun before the Revolution and resumed after the war ended. These new streets received the names of Crown, Court, Wall, High, Temple, and Orange. The whole appearance of the Green changed in 1784, when Temple Street was cut through from Elm to Chapel. An extension of Elm Street beyond York connected with the road to Amity and was called Broad Way.

A number of streets connected the nine squares with the all–important waterfront. Union and Olive streets ran north and south to the east of State. Connecting the central district with the shore were Meadow and Fleet streets, which ran south from Church and State. The road along the harbor from around Long Wharf east to Ferry Point became Water Street. The names Cherry and Fair were given to the small streets that ran off in an easterly direction from the southern part of State. Cherry later became Wooster.

All the streets were without regular lines of trees, pavement and sidewalks. They were far from impressive, being alternately dusty and muddy.

James Hillhouse, who was responsible for many innovations, was the first man in town to become interested in the new concept of the rural estate. As an initial step in developing his large estate north of the nine squares in what was then countryside he laid out Hillhouse Avenue in 1792 as a private thoroughfare and planted a double row of elms along it. He intended to live there himself, but he also encouraged friends to buy pieces of his property and settle near him.

All through the eighteenth century a small number of families elected for reasons more practical than Hillhouse's to live at a distance from the central community. There were scattered farms in all directions and two satellite villages. Grand Street, now Grand Avenue, provided a transportation link from town eastward to a ford across the Quinnipiac River, and at that point the oystering village of Fair Haven began to grow along both banks after the Dragon Bridge was opened in 1791. In the other direction from New Haven the farm village of Westville, dating from about 1700, developed some mill activity after midcentury at the confluence of West River, Wintergreen Brook, and Beaver Brook.

Improvement in road design and maintenance came late in the century when private companies were established to build turnpikes and collect tolls from their users. The Litchfield or Strait's Turnpike, chartered in 1797, ran from the Green along Broadway and Whalley Avenue to the Litchfield Court House. The Hartford Turnpike, chartered in 1798 by James Hillhouse, ran from Grove Street out Whitney Avenue to Hartford. The Derby Turnpike, chartered the same year, ran westward along Chapel Street and Derby Avenue to the Derby landing.

The postal routes connecting eastern New England with New York all converged at New Haven. This pattern was repeated in the next century when the railroad lines were laid out.

Wherever people settle they cause sooner or later some sort of topographical change. Habitation near West and East creeks and activity along their banks produced erosion as good soil washed away and dry soil washed down from inland to replace it. These two streams became progressively smaller until by 1800 East Creek had totally disappeared, and very little water still flowed through West Creek. Nothing that radical had happened to the large salt marsh at the mouths of the Mill and Quinnipiac rivers, but bit by bit filling and draining had begun, a process that has greatly reduced the size of the marsh today.

The population of New Haven proper, that is, of the original nine squares and the adjacent neighborhood along the waterfront, increased about sixfold during the eighteenth century. There were slightly over 650 inhabitants at the beginning of that period, 1,000 in 1729, 1,500 in 1761, fewer than 2,500 in 1769, and 3,500 in 1775. By 1800 the population was slightly in excess of 4,000. It was in every decade predominantly of English descent.

4 From Seaport City to Pioneer Industrial Center, 1800–1865

New Haven's dramatic rise as an early and important manufacturing city is the dominant theme of this period, but shipping continued to play a considerable role in the local economy, and Long Wharf remained the symbol of maritime prosperity. Without it New Haven would not have been a port of any consequence, and extensions to it were necessary periodically because the natural shallowness of the

harbor was compounded by the natural increase in mud, variously called marsh, vegetable, harbor, creek, and peat mud.

The earliest sections of Long Wharf were made of wood, sod, and earth, but William Lamson switched to stone when he built an extension in 1810–11. Quarrying his material at East Rock, he loaded it into scows at a dock erected there for the purpose and floated it down the river to Long Wharf. This addition connected the wharf to the harbor pier that dated from the 1770s, and the whole structure was also raised enough so that it would be above high tide.

A serious fire on the wharf in October 1820 destroyed many of the stores and warehouses that had been built on it, causing a loss of a quarter of a million dollars. The response to this disaster was another extension in 1822, and there was a final, short one in 1855. By then Long Wharf stretched nearly one mile into the harbor, making it more than twice as long as the Boston Pier and longer than any other pier in the United States. Except for the larger section constructed in the 1700s it was from thirty to forty–five feet wide, and ballast from visiting ships was used to fill it in.

West Creek was still used as a place for unloading vessels during the first part of the century. Probably because of the numerous shoemakers, smelly tanneries, and marshes, the adjacent neighborhood became known for the poverty of its inhabitants.

The Embargo of 1808, the subsequent Non–Importation Act, and the War of 1812 shut down the port and temporarily ruined the city's prosperity. There was a prompt revival after peace came, and much of New Haven's commercial life continued to revolve about the harbor for about another two decades.

It was fortunate that New Haven was able to shift to an economy based on manufacturing, however, because the inadequacy of its harbor became more and more evident as the years went by. There were marshlands, flats, and accumulating sediment in all directions, and offshore toward the northwest the winter harbor which had once been a bay with a shipyard deteriorated into a meadow. A sandbar, an extension of Sandy Point, projected out from West Haven almost to the channel. The depth of the channel at low tide was an insufficient fifteen feet in most places, and near the bar it was only seven and a half. Construction of an insulated pier three–quarters of a mile from the West Haven shore was partly to blame for the existence and growth of this sandbar, and intentional landfill operations added to the general problem in other areas. The harbor was barely deep enough to accommodate seagoing vessels at the beginning of the century, and as ships became larger the situation got worse. With the coming of the railroad era local maritime activity declined.

The first steamboat to visit New Haven was the *Fulton*, which made its maiden voyage from New York in 1815, arriving at what came to be known as Steamboat Dock, east of Long Wharf. The neighborhood around Tomlinson's Bridge acquired great importance as this new form of transportation grew in popularity, and several wharves were constructed to the east of Long Wharf before midcentury. Steamboat

Dock and Long Wharf gradually lost the steamboat trade to Belle Dock, built in 1840, which was located on the west side of the harbor south of Tomlinson's Bridge. Passenger ships built for use on Long Island Sound were of shallow draft, normally not more than about ten feet.

One harbor activity that kept gaining in importance was the oyster trade, and poles used in staking out oyster plantations were seen increasingly in the harbor and adjacent rivers. Many oyster beds were destroyed by the influx of mud.

There being some danger that New Haven might be attacked again prior to or during the War of 1812, the two familiar harborside defensive positions were once more put to use. Fort Hale, a small, round, brick structure named for the revolutionary martyr, was built on the east shore in 1809 near where Black Rock Fort had stood. Five years later Fort Wooster, consisting of breastworks and equipped with a beacon like the one used during the previous conflict was erected on Beacon Hill, honoring the memory of the local revolutionary general. Fortunately there was no second British invasion, and both sites soon fell into disrepair. Fort Hale was reconstructed as a much more substantial fortification in 1863.

In 1804 the United States government purchased from Amos Morris land at the eastern entrance to the harbor known as Morris Point or, because of its distance from downtown New Haven, Five Mile Point. There they erected a wooden lighthouse, which in 1840 was replaced by a larger, octagonal, sandstone tower. That location is now called Lighthouse Point.

The completion of the three churches on the Green in 1814–15 produced a monumental composition along Temple Street that became the trademark of the city. The 1763 Georgian brick State House located between Trinity and Center churches was removed in 1828 and was replaced by the State House designed by Ithiel Town. The new building stood from 1828 to 1889 behind Center Church on the College Street side of the Green. The Green, noted for its elms, was recognized as New Haven's undisputed psychological center, and after the churches were built it came to be equally famous for its natural beauty and its architectural merit. It was often described as the most beautiful public square in the United States.

Once burials on the Green were terminated in 1812 attention could be paid to improving the appearance of the part of the central square that had served as a cemetery. Most of the monuments outside of Center Church were removed to Grove Street in 1821–22, and the wooden fence around the burial area was taken down. Then by means of landfill the ground surface was raised to its present elevation. This was an ambitious project because the previous land level was what visitors see today in Center Church Crypt.

The Green did not lose its rural look immediately. During the early years of the century the city sold the grass crop that grew there and used the proceeds to improve the area. The practice of grazing cows was forbidden in 1821, but it did not actually end until about 1830. Between 1833 and 1856 an Agricultural Society Fair was held on the Green every year, a pastoral scene in the midst of New Haven's increasing industrialization and urbanization.

One hundred fifty maples and elms were planted on the western side of the Green in 1839 by order of the city's Common Council. The wooden fence around the square dating from about 1800 was replaced in 1846 by one made of wrought iron and stone, enclosing slightly in excess of sixteen acres. The entire area within the bounding streets is twenty–one acres. The town well at Church and Chapel streets, mentioned so often in the literature of the period, was installed in 1813 and was covered with a canopy in 1878.

Elm trees were by no means confined to the Green. Hillhouse and Austin continued to plant them until 1810, and they gave a handsome country look to an increasingly urban area wherever they appeared. Landowners on and near Wooster Square raised $1,500 not long after that date to plant elms in the New Township. The name Elm City or City of Elms was first used to describe New Haven by Louisa Caroline Tuthill, a well–known literary figure of the first quarter of the nineteenth century.

Unhappily New Haven's lovely elm trees began to show vulnerability to canker worms, and the newly arrived English sparrows also attacked the trees. For just these reasons more maples than elms were placed on the Green in 1839. Troubled or not, the elms in the middle of the city remained objects of admiration.

As was noted previously, the original proprietors had charge of the distribution of land. Because many of their heirs moved away or could not be identified, it finally became impractical to try to have all of them involved every time a new apportionment was contemplated. To resolve this problem the Committee of the Proprietors of the Common and Undivided Lands was created in 1805, and all the interests, rights, and powers of the descendants of the original proprietors were transferred to this permanent, self–perpetuating, five–man board. In 1810 the Connecticut legislature passed a law—which applied solely to New Haven—confirming the committee's powers and ratifying all of its acts since 1805. Much of the land had been disposed of by the early nineteenth century, and by the twentieth the common and undivided lands had shrunk to just the central Green itself.

Grove Street Cemetery was a solemn and impressive place, and it became increasingly beautiful as time went by. As we mentioned above, eight acres were added to the original ten in 1814. When the city decided a few years later to move the monuments there from the upper Green, three acres were sold to make this possible. A section was also sold to Yale for a college lot. Between 1839 and 1849 a joint committee of the Proprietors of the Grove Street Cemetery and the city spent $25,000 in private donations and public funds to build a large wall around three sides, an iron fence in front along Grove Street, and an impressive Egyptian gateway. They also increased the planting of trees and shrubbery. The final touch was a Victorian chapel, built in 1872.

Increasing difficulty in obtaining plots in Grove Street led to the formation of the Evergreen Cemetery Association, incorporated in 1848 and originally named the Washington Cemetery Association. Initially encompassing about thirteen acres, it is adjacent to the West River area at the end of Sylvan Avenue. Other cemeteries

were also needed. A Protestant burial area in Westville was founded adjacent to Whalley Avenue, and Mishkan Israel established a cemetery adjoining it. In Fair Haven a cemetery was laid out behind the First Congregational Church on Grand Avenue. A Catholic cemetery, St. Barnard's, was begun on the south side of Columbus.

Yale's Old Brick Row consisted of eight buildings running north from Chapel Street and facing the Green but set back from College Street. These plain but well–arranged buildings, erected one by one between the 1750s and 1830s, were noted more for their utility than their beauty, but with the passage of time they acquired a venerable look and they always possessed an air of elegant and studious repose. By 1865 the college owned the entire block bounded by Chapel, College, Elm, and High streets; it is known today as the Old Campus. Anyone facing the block from the Green saw only the Old Brick Row, but another half dozen buildings stood behind it, scattered along High Street or in the middle of the block.

In 1814 James Hillhouse sold Yale a building on the northeast corner of Grove and Prospect streets for use as a medical school. It was later acquired by Joseph Earl Sheffield, but eventually he returned it to Yale to become the headquarters of the Sheffield Scientific School. Yale's science facilities grew in the years after 1865 around this outpost and along Prospect Street and Hillhouse Avenue, and they long remained distinct physically and administratively from the academic center near the Green.

New Haven during the first six and a half decades of the nineteenth century is remembered most for its dramatic transition from purely a port to one of the first and most important manufacturing centers in the country. This golden age may be said to have started in 1798, when Eli Whitney, already famous as the inventor of the cotton gin, opened his gun factory just north of the New Haven line in what became the Whitneyville section of Hamden. By the time of the Civil War the city boasted many factories, which made not only guns but also carriages, hardware, clocks, rubber goods, shirts, organs, and cigars.

Englishmen founded New Haven, and until about 1830 its population consisted with few exceptions of families whose ancestry was English. After that date and until the beginning of the Civil War there was a fairly large influx of immigrants from Ireland and Germany. The earliest arrivals helped to build the Farmington Canal and the railroads, and increasingly the newcomers found employment in the new factories springing up all over town.

In the early part of the century New Haven looked provincial and rural, a city of homes, yards, and gardens. Dwellings were neither costly nor elegant, and public buildings lacked beauty and architectural significance. Most structures were of wood; only forty brick ones existed in 1810 and eleven made of stone. New Haven was, nevertheless, a charming place set among trees and pleasantly situated on a plain. The area's natural barrenness had been overcome, and the many trees, flowers, and vegetables gave it a cultivated look.

The passing years brought considerable change. Much of the new construction represented the best in contemporary architecture, and New Haven gradually became known as one of the most beautiful cities in the United States. Trinity Church on the Green (1815), Yale's library on what is now the Old Campus (1842), and the City Hall (1862) were superb examples of Gothic Revival. Sachem's Wood (1829) at the head of Hillhouse Avenue, the General State Hospital Society (1830–32) in the Hill, and the third Connecticut State House on the Green (1828) were Greek Revival at its best. The Grove Street Cemetery gateway (1845) is one of the few really fine Egyptian Revival designs in the nation. The Italian Villa style became popular for large homes, replacing Greek Revival, and it was executed as well in New Haven as it was anywhere. Artists who painted in the city during the period concentrated on Yale College, the Green, East and West rocks, and the harbor.

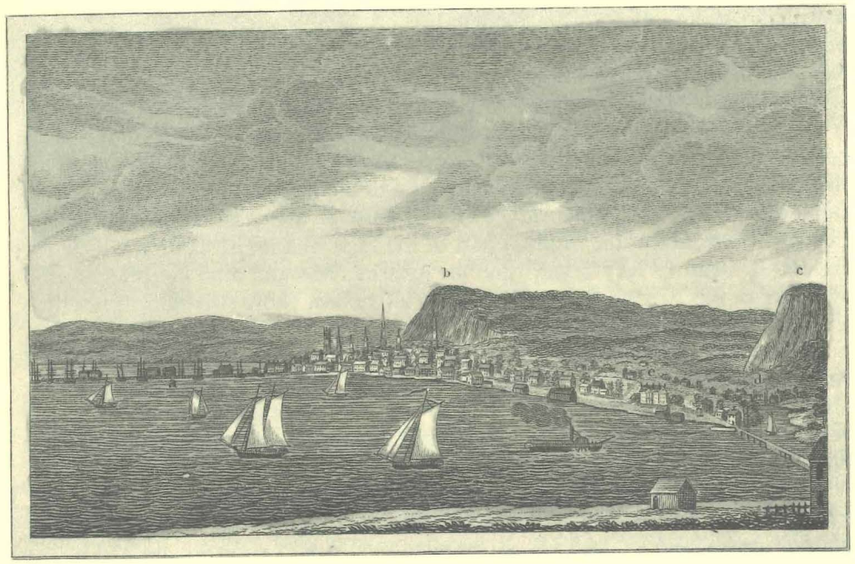
Some of the handsomest buildings could be found along Elm Street. The block between Church and Temple streets became known as Quality Row because of the size and elegance of the mansions belonging to the Bristols (1802), Smiths (1818), DeForests (1821), and Trowbridges (1852). West of there, between Temple and College streets, stood the original part of the First Methodist Church (1849), the eighteenth–century Tory Tavern, and the Jonathan Mix and John Pierpont houses, and also the more recent Ralph Isaacs Ingersoll house. Those two blocks presented a very imposing cityscape indeed.

The Broadway neighborhood just west of there grew early in the century into a substantial business center serving particularly outlying districts and neighboring towns. York Square, between Broadway and Grove Street Cemetery, was developed about 1830 by retired New Yorkers who erected substantial Greek Revival homes in an attractive spot that had once been filled with apple orchards.

Along with charming neighborhoods New Haven was also acquiring slums. The triangular area beyond Broadway bounded by Whalley Avenue, Sperry, Goffe, and Webster streets, and Dixwell Avenue became known as Poverty Square, and by the beginning of the century the section south of West Creek had earned such a notorious reputation that people referred to it as Sodom Hill.

Hoping to provide moderate–priced housing of good quality for the less affluent part of the population, two idealistic brothers, Nathaniel and Simeon Jocelyn, undertook two speculative real estate ventures during the 1830s and 1840s. Spireworth Square, now Trowbridge Square, was intended to be a self–contained residential neighborhood in the Hill built around a miniature version of the Green. Franklin Square, now Jocelyn Square, was in the northeast corner of the New Township, bounded by State Street, the Mill River, Grand Street (now Grand Avenue), and Hamilton Street. Neither attempt was very successful.

In the early part of the century the city was said to be divided into two parts, the Old Township and the New Township. The former, of course, was basically the original nine squares. The New Township to the south and east grew into a second center, which rivaled the Green and the older neighborhoods around it. As the population grew during these years, the city expanded eastward, initially along



John Warner Barber's southeast view of New Haven from the east shore of the harbor, 1825.

Water Street, which at that time ran along the edge of the harbor. For many years the New Township's waterfront was a fashionable resort catering particularly to southern vacationers. The well–known Pavilion Hotel, once called the Steamboat Hotel, featured a large bathing beach and had as its neighbors quite a number of fine residences.

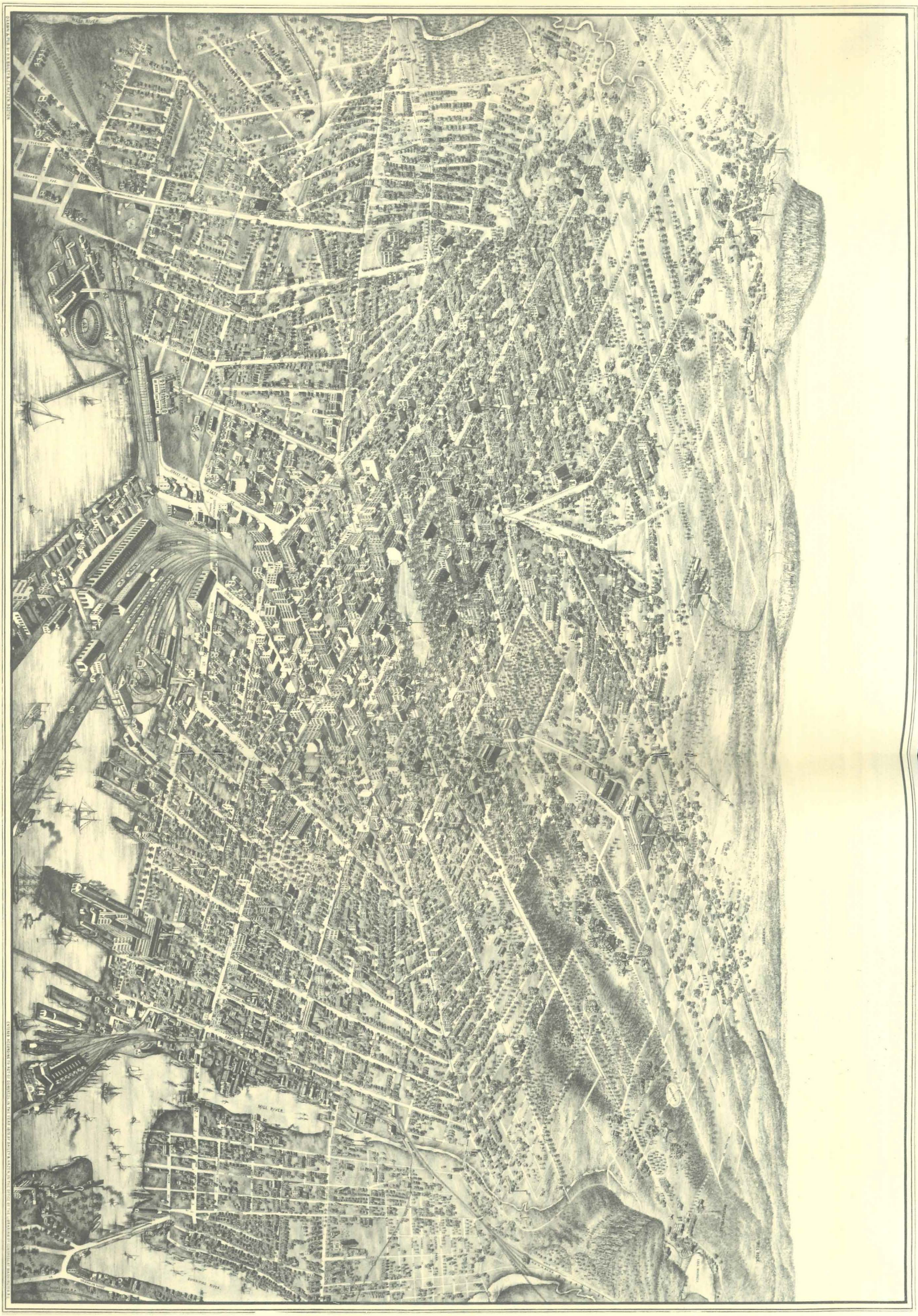
The New Township soon spread inland toward the north, and in the 1820s New Haven purchased from Abraham Bishop a pasture, which was converted into Wooster Square, named for David Wooster, the Revolutionary War general. Between 1825 and 1880 merchants and sea captains and, later, industrialists and financiers built handsome homes around the six–acre pasture, which had become a green; some of them reflected a southern architectural influence. The most imposing structures faced the square or were near it, but the whole neighborhood became fashionable. An iron fence was built around the square in 1860, replacing a wooden one.

This new residential center had a consistent character, but there was variety elsewhere in the New Township. Construction of railroads along the Mill River and in the bed of the Farmington Canal and the already–existing waterfront facilities combined to attract industry, and during the 1850s many factories were put into operation in the eastern and southern parts of the New Township. This trend inevitably attracted workmen who wanted to live near their jobs and other families who had to live where industrialization had depressed residential land values. What has been described as an Irish slum formed near Chapel and Chestnut streets. There was a low–income neighborhood called New Guinea along Franklin Street and later still another known as New Liberia at the foot of Greene Street. Lower State Street, which lay at the borderline between the old center and the newer one to the east, experienced dramatic growth from 1800 to 1820. There was thereafter little change until the Civil War as the center of vitality moved to the New Township.

In 1824 the area previously called the Dragon became known officially as Fair Haven, and by then it had grown into a cohesive community clustered along the Quinnipiac River and engaged in oystering and ancillary activities. There were many oyster beds in the river, and long and round clams were also plentiful. Lime was manufactured from oyster shells, and there was also shipbuilding. Fair Haven was known for its oyster shell roads and for the New Haven Sharpie, a small, shallow–draft boat used in the oyster trade. Many of the homes, usually of two–story, central chimney design, had street–level basement entrances wide enough to accommodate wheelbarrows filled with oysters.

Fair Haven was remote from downtown New Haven, but transportation improved in small increments. The Dragon Bridge, erected in 1793, was rebuilt in 1807, and toll charges were discontinued in 1825. When a horse–drawn railroad connected the village with the central city in 1861, further growth was predictable.

People tended to live in close proximity to transportation hubs, and by midcentury another hamlet was developing near the eastern end of Tomlinson's Bridge, in what was known as the Annex. New Haven also was finally spreading to some



A bird's-eye view of the city in 1879.

extent toward the north and west. Whalley Avenue was part of the Litchfield Turnpike, chartered in 1797, and Dixwell Avenue was laid out between 1802 and 1812. By 1865 Dixwell had become an identifiable neighborhood inhabited mostly by craftsmen, including some blacks. Newhallville, beyond Dixwell, was even slower to attract residents. The earliest inhabitants appear to have been Irish and German immigrants who helped build the Farmington Canal. Later, George T. Newhall located his factory there, and that caused some increase in the population.

Harbor activity and later railroads and factories caused considerable growth south of the Green and down the west side of the harbor. The area around West Creek became the bedroom neighborhood for the laboring classes. After 1800 houses were built on the west side of Water Street, which ran south from the creek along the edge of the harbor. Sodom Hill, already mentioned, was near the present junction of Congress Avenue and South Frontage Road.

By about 1845 Oyster Point was becoming an active oystering center, although it was no rival for Fair Haven, and houses were beginning to be built there. Oyster Point Road, later renamed Howard Avenue, was laid out about 1840 and ran from the Hill down to the Point. Several large residences were built on this wide, handsome boulevard, which was lined on each side with poplars, and a satellite village grew around them. Civil War regiments trained near there in what must have been a rather pleasant atmosphere.

Westville, located near West Rock in the most westerly part of the Town of New Haven, crystallized as a remote, self–sufficient town during the early part of the century. It remained essentially a farming community, although it attracted a few factories, and parts of it remained forested. It had a population of seven hundred in 1839, and it grew thereafter, particularly after the horse–drawn railroad connected it with the central city in 1861.

There was at this time a growing interest everywhere in rural estates, and New Haven boasted two famous ones, Raynham on the east shore and the Hillhouse property north of the Green. James Hillhouse laid out a private road through his farm in 1792 on a right of way 150 feet wide. Originally called Temple Avenue, it was renamed Hillhouse Avenue in 1830, and it remained a private thoroughfare until 1862, at which time it still retained its rural character. In 1829 Hillhouse's son, James Abraham Hillhouse, built Sachem's Wood, an impressive Greek Revival manor house on the high ground at the north end of the avenue. Other splendid mansions were built one by one along Hillhouse Avenue, making it New Haven's most beautiful and prestigious neighborhood.

Nineteenth–century New Haven was noted for its broad, straight streets, which in most cases met at right angles. The streets were normally muddy at the beginning of the century, but by the early 1820s paved sidewalks began to appear in the center of the city. The first roadway to be macadamized was Whalley Avenue between Broadway and Westville, in 1851. A macadamizing program was implemented thereafter in other areas.

The turnpike craze continued into the nineteenth century. The Cheshire Company was chartered in 1800 to build a road from New Haven through Cheshire to Southington. The New Haven and Milford Turnpike Company was incorporated two years later, and in 1813 the Middletown, Durham and New Haven Turnpike Company was chartered. Writing in approximately 1814, Timothy Dwight stated that six turnpike roads commencing at New Haven were then in use, and a few years later John C. Pease and John M. Niles noted eight. As the century wore on, turnpike companies one by one turned over to New Haven the ownership of those sections of their roads that were inside the city limits.

A transportation revolution swept through Europe and the settled part of the United States during the first half of the century, introducing improved methods of moving people and goods. It started with turnpikes, turned to steamboats, and then focused for a few years on canals. James Hillhouse, always in the forefront of civic improvement schemes, mobilized support for an inland waterway to Massachusetts that would enable New Haven to compete with Hartford by giving it direct access to the markets in the Farmington Valley and the Connecticut River Valley.

The Farmington Canal Company was chartered in 1822 and was given a special sort of financial assistance two years later when the Mechanics Bank of New Haven received its charter from the state with the stipulation that it had to subscribe $200,000 of stock in the canal venture. The canal, construction of which began in 1825, reached the Massachusetts line in 1829. There it connected with another canal largely owned by New Haveners, the Hampshire and Hampden, which ran to a junction with the Connecticut River at Northampton, Massachusetts.

The waterfront terminus of the Farmington Canal was a bit east of Long Wharf, and it connected both with it and with Tomlinson's Wharf. Two sluices with tidegates at the terminal basis allowed traffic in and out of the canal, which used the bed of East Creek for part of its route. Excavation of the canal through New Haven necessitated removal or relocation of many buildings, bridging of streets, and construction of locks, basins, and wharves. Many manufacturing plants were built along the canal as were the houses of many factory owners and workers, and in this way the canal caused a real estate boom. An interesting example of Yankee ingenuity was cutting ice from the canal during the winter season and shipping it by sea to the tropics.

The foot of the canal was built very close to the corner of Chapel and Union streets, where the City Market already stood. This made it easy for the market to receive produce coming down the waterway from inland farms as well as provisions landed from the harbor. The market building was razed in 1843.

The Farmington Canal was never very successful, due partly to expensive maintenance and lack of state subsidies, which kept canals elsewhere financially healthy. In addition, men of vision were aware that canals were being made obsolete by the newest transportation development, railroads. The New Haven and Northampton Company was formed in 1836 by merging the two original

companies, but the new joint firm did no better than the previous, independent ones. In 1846 the stockholders voted to amend the charter to permit replacement of the canal by a railroad, and construction of it began at New Haven in 1847. The line opened as far as Cheshire that year and reached Plainville in 1848 and Collinsville in 1850. Two years later the canal basin in New Haven was filled in for railroad use. Workshops, car barns, and other necessary maintenance structures were constructed, and after the Civil War additional trackage was laid. Ultimately this road passed into control of the New York, New Haven and Hartford Railroad Company.

The game stockholders of the Farmington Canal rescued their company from jeopardy, but they did not give New Haven its first railroad. That honor went to the Hartford and New Haven Railroad Company, which ran down from Hartford along the west side of the Mill River to the harbor in the area of Belle Dock. Construction began in 1833, and the line was operational in 1839.

The New York and New Haven Railroad Company was chartered in 1844 and completed in 1849. In order to make it easier to lay the track and provide related facilities the construction crews did considerable filling during those years at Long Wharf and along the west shore of the harbor. A depot with a 140–foot tower was built in 1848 at Chapel and Union streets on the site of the former City Market.

Still another novel form of transportation, the horse–drawn railroad, made its appearance when the Fair Haven and Westville Railroad Company was chartered in 1860, empowered to build a line between those two villages with branches running to certain other sections of town. During the next few years other companies came into existence to operate other routes: the New Haven and West Haven and the New Haven and Centerville in 1865, the State Street in 1868, and both the New Haven and Allingtown (later named the Sylvan Avenue) and the Whitney Avenue lines in 1872. Eventually these various railroads reached into every part of New Haven and encouraged people to move further out from the center because it was no longer necessary to live within walking distance of one's job. The lines all converged at Church and Chapel streets, either commencing their routes there or passing the Green at that intersection.

In 1826 Elijah Thompson bequeathed to the city a fifty–acre tract of land on a rocky ridge adjoining the Woodbridge town line. This was probably done with some idea of creating a park, and it turned out to be in fact the beginning of West Rock Park and of New Haven's park system.

During the early part of the century the local well water was so plentiful that any householder could sink a well with assurance that he would find as much water as he needed. Public as well as private wells were common, and water from the various creeks could be used for fighting fires. As the years went by, the situation changed. The gradual removal of trees caused a drop in the level of groundwater, thereby reducing the availability of water from wells. Industrialization, the growth of a compact business district, and the replacement of the Farmington Canal by a railroad made evident the need for a more adequate water supply for fire fighting. Water for making industrial steam was also in increased demand.

The New Haven Water Company was incorporated in 1849, and in December 1861 it began pumping water from the Mill River, dammed in Hamden for the purpose, into a reservoir on Mill Rock in Hamden. The dam, forming Hamden's Lake Whitney, reduced the Mill River in New Haven to a silted stream. A month later water was running through seventeen miles of cast–iron main and thence through lead connections to all parts of New Haven.

Until the Civil War period a deep, dry, sandy gravel soil combined with a relatively sparse population had made New Haven indifferent to the necessity of a sewerage system, but by then its sanitary problems had become alarming. Cesspools, vaults, and tainted soil were everywhere, and the creeks had become sewers. During 1861 and 1862 a sewer was constructed through Greene and State streets leading to the harbor, and Mill River water was funneled through this system.

The New Haven Gas Company obtained its charter in 1847, and it soon built a gas manufacturing plant on St. John Street. The first house in the city lit by gas was that of Professor Benjamin Silliman, Jr., on Hillhouse Avenue, and the year was 1848. In 1849 the city contracted with the gas company to light some downtown streets, and the magic of gaslight changed nighttime New Haven dramatically.

In 1800 the Town of New Haven contained 524 dwelling houses, 110 stores, and 337 barns and shops, and two years later there were said to be about 1,000 buildings of all types. By 1810 the total number of houses had grown to 750, with 314 of them located on the streets forming or within the original nine squares. In 1860 the town contained 4,500 dwelling houses, 232 factories, 507 stores, and 14 banks.

A total of 5,157 people lived in the Town of New Haven in 1800, including 4,049 residing within the central city itself. By 1810 those two figures had risen to 6,967 in the town and 5,772 within the central city, and in the early 1830s there were 12,201 altogether and 11,534 in the city.

5 The Halcyon Days of Manufacturing, 1865–1945

The Civil War curtailed port activity, but interest in maritime affairs revived after the end of hostilities, and from time to time additional port improvements became necessary. In 1887 the harbor was dredged to a depth of twenty feet at mean low tide and twenty–six feet at mean high tide. The channel was and still is located near the eastern side of the harbor. The East Breakwater was completed in 1888, the Luddington Rock Breakwater in 1894, and the West Breakwater shortly after the turn of the century. The completion of this breakwater system provided a harbor of refuge of over two thousand acres, and a major anchorage was made available. The stone lighthouse built in 1840 ceased to function in 1877, when a beacon on the new breakwater replaced it, but the tower continued to stand in what has become Lighthouse Park, and it remains a valuable navigational aid.

West Creek, which originally cut off the nine squares from the land toward the south, was filled in 1875. For a long time there had been a lane running parallel to

New Haven and its vicinity, from John Warner Barber, *History and Antiquities of New Haven, Conn.* New Haven, 1870.

and on the Hill side of that stream. At first it was called, for obvious reasons, Creek Street. Later, because the tanning industry was for a time concentrated there, it took on the name Morocco Street, a reference to a type of leather. Finally it became known as Oak Street.

Although shipping regained its importance after the Civil War, it gradually lost ground to the railroads. This could be seen by visitors to the focal point on the waterfront, where Long Wharf to some extent languished while more and more railroad facilities were built around it.

This shift in the relative prominence of the two major forms of transportation became increasingly evident during the twentieth century. Between City Point and Fair Haven, where maritime activity had flourished in earlier times, some marginally used wharves and docks remained. Their role in passenger and freight handling was now clearly subordinate to that of the railroads, and Long Wharf had become a monument to the past. Smaller and better facilities between the wharf and the Quinnipiac River more adequately served the remaining maritime trade. Industries benefiting from waterborne transportation were scattered along the harbor frontage. Two imports into the harbor, coal and, later, petroleum products, were of considerable significance. Waterborne passenger service to New York was discontinued in 1918. Altogether, the harbor continued to decline in economic importance.

In 1900 the City Point section was still the headquarters for several firms engaged in the oyster business, but the bulk of the trade remained at Fair Haven. Oysters required relatively quiet and shallow water, quiet so that the young can set and mature undisturbed, shallow so that sunlight can support the nutrients on which oysters feed. New Haven harbor was ideal in both these respects. During the early twentieth century, however, the local oyster industry experienced a gradual, continuous decline due to various factors including pollution, storms, and the proliferation of starfish, a natural enemy of oysters.

As late as 1910 the Green still retained the feeling of a New England town center. The well–known Franklin Elm had been removed from the Church and Chapel corner shortly before then, but other early trees and artifacts remained to sustain the bucolic or at least small town appearance. About the time of World War I, however, construction around and near the Green changed the atmosphere to twentieth–century urban, putting new emphasis on the concept of centrality. Americans then took pride in their downtown business cores, and no city had a handsomer or more visible center than New Haven.

New Haven's much–loved elm trees on the Green and throughout the city attained their maximum beauty in the 1860s. From then on they slowly deteriorated as they were attacked first by canker worms, then by elm leaf beetles and the great windstorm of 1893, which brought down many trees of all kinds. The final and most serious problem was Dutch elm disease. Between 1911 and 1921 about five thousand dead and diseased trees, mostly elms, were cut down throughout the city.

To make up for these and earlier losses ten thousand trees were planted, a mixture of Norway sugar and red maples along with some sycamores, lindens, and elms.

By the beginning of the present century the common and undivided lands were reduced to the central square itself, and the proprietors of those lands have since then devoted themselves to the protection and welfare of the Green. The block bounded by College, Chapel, High, and Elm streets had provided ample space for Yale when the Old Brick Row was built, but gradually the feeling grew that it would sooner or later become hopelessly overcrowded. One solution, considered as early as the 1840s, was to move the campus to Prospect Hill on the northern outskirts of the city. Another idea, which emerged about midcentury, was to construct new buildings around the perimeter of the block and remove the old ones in the middle. The latter alternative would make the campus face inward and thus turn the college's back on the town, and many favored it because it seemed likely to solve the problem of security as well as the problem of space. Debate about which course of action to follow ended in 1869 when construction began on Farnam Hall, the first step in the creation of the new quadrangle on the old property. The building program that began then continued through the rest of the century, and it expanded beyond the Old Campus, particularly toward the west and north. Yale declared itself a university in 1887, and by 1900 it had a total of three thousand students and faculty.

Yale's urban location shaped but did not restrain to a measurable degree its tremendous twentieth–century expansion. The university's method of achieving privacy and security has continued to be the development of enclosed campus areas. Its architecture holds to the street building line and thus creates its own interior open space.

The construction of Woodbridge Hall, Woolsey Hall, and Commons during the university's bicentennial in 1901 closed the physical gap between the old academic center and the newer scientific center to the north. The famous Yale Bowl in Westville was finished in time for the 1914 Yale–Harvard football game, and in the late 1920s Yale built a magnificent golf course in the western part of New Haven.

The most significant of all the university's building programs began in the early 1930s with the implementation of the residential college plan. The colleges provide housing, dining, and related facilities for upperclassmen together with a master's house, some faculty housing, and a library. Freshmen are now affiliated with a residential college, but most of them live on the Old Campus. Built during this period were not only the colleges but also a new library, graduate schools, and a large gymnasium.

The New Haven State Normal School, which is now Southern Connecticut State University, was founded in 1893, giving the city its second institution of higher learning. The school's first permanent home was built on Howe Street in 1896.

Ingenuity and hard work had made New Haven a major manufacturing center by the time of the Civil War, and there was a further flowering during the decades following that conflict. By 1884 about half of the city's twenty–five thousand

workers were employed in over two hundred factories, making a wide variety of products. The largest enterprise in the city was the Winchester Repeating Arms Co., whose mammoth factory was erected in Newhallville. Engaged in the same business were Marlin Fire Arms Co., Strong Fire Arms Co., and, just over the line in Hamden, the Whitney Fire Arms Co. There were close to two dozen hardware manufacturers, the largest by far being Sargent and Co. Thirty–nine firms made carriages, and approximately forty others made carriage parts. Home equipment producers turned out clocks, organs, and furniture. There were thirty–nine cigar makers, and three companies turned out rubber goods. New Haven continued to be recognized as a thriving factory town, and the period between the Civil War and World War II can be characterized as its golden age of manufacturing.

Expansion of New Haven's industrial base would have been impossible without a large, relatively steady influx of immigrants who provided the manpower to run the factories. There were only 142 residents of foreign birth in 1801 and very few prior to 1830, but Europeans flowed in after 1850. By 1870, more than a quarter (28 percent) of the population was foreign–born, a proportion that remained almost constant until 1900 and then gradually declined. The first ethnic groups to arrive in substantial numbers were German and Irish, but after 1880 most of the newcomers were from Italy and Eastern Europe. There continued to be a small black community, which was increasingly centered in the Dixwell neighborhood.

The central business district came increasingly to be those parts of the nine squares that lay south of Elm Street and east of College Street. The intersection of Church and Chapel streets was the crossroads of the city and the very heart of the commercial zone, although the wholesale trades were situated along State Street. Compact rows of buildings began to line the downtown streets in place of isolated structures. The First National Bank erected an eight–story building on the southwest corner of Church and Crown streets in 1894. Five years later the Edward Malley Co., the largest department store in the area, put up a building of equal height facing the Green on Chapel Street at Temple.

At the beginning of the present century men of vision throughout the country became interested in the City Beautiful movement, whose impetus derived from the Chicago World's Fair of 1893. A group of New Haven citizens led by attorney George Dudley Seymour organized the Civic Improvement Committee in 1907 with the intention of formulating and then executing a comprehensive plan for their community. They retained the services of the noted architect Cass Gilbert and the renowned planner Frederick Law Olmsted, Jr. The proposal presented by those two able professionals in 1909–10 was unfortunately almost totally ignored, but one happy result of their involvement was that Gilbert was commissioned to design two buildings, the Free Public Library, which was built in 1908 on Elm at Temple Street, and Union Station, erected ten years later. Both were outstandingly handsome.

The public library was only one of several distinguished additions during the early decades of this century to the blocks facing the Green. The 1914 county

courthouse further down Elm Street at Church and the post office and federal district court on Church Street at Court Street, completed at the end of World War I, were both fine examples of classical design. The twelve–story Union and New Haven Trust Company bank and office tower erected in 1927 at the northeast corner of Elm and Church streets utilized colonial design in a way that made the building blend with the churches standing near it on the Green.

New construction around the Green frequently necessitated the removal of familiar but aging landmarks. Quality Row made way for the library, and the Tontine Hotel, famous for nearly a century, was replaced by the post office and federal district court. During 1911 the twelve–story Taft Hotel went up where the much–loved New Haven House had stood on Chapel Street at College.

The appearance of the residential parts of the city changed in a number of ways during the latter part of the nineteenth century. New homes, at least the larger ones, became more ostentatious. Row houses were introduced in the 1860s, apartment houses in the 1870s, and two–family houses in the 1890s. Although many residences were built, they were not crowded together. Generally speaking the northern part of New Haven was less developed than the southern. Much of the new construction was in the well–established downtown area, but several satellite centers sprang up or expanded visibly: the New Township; Orange Street north of Grove; the West Village, which was the section to the west of Yale's original campus; Sherman Avenue; and the Third Ward, which included most of the Hill. At the same time several well–defined slums developed on Oak Street and the adjacent Hill, in the Dixwell Avenue neighborhood, and in certain sections of the New Township.

By the early part of the twentieth century living space became scarce, and many New Haven families had to double up. Industrialization and immigration changed certain neighborhoods, and many nineteenth–century buildings became obsolete. The older central streets began to have difficulty handling automobile traffic.

Lower State Street gradually filled up with commercial buildings during the decades after the Civil War, consolidating its function as a retail strip and giving it a markedly new appearance. The upper end of the street, which was originally totally uninhabited, began to develop after midcentury, when the Bishop family property began to come on the market. The earlier buildings erected there were largely for residential purposes, but commercial utilization became dominant after 1875, and ultimately there was also a little light industry. The older structures on lower State Street deteriorated after 1900, particularly during the Depression.

Cedar Hill, adjacent to upper State Street, developed very slowly after 1865 into a neighborhood with a little commerce and light industry and a population consisting largely of laborers who worked near their homes. There was a large expansion of activity after the New York, New Haven and Hartford Railroad began to build the Cedar Hill Railyard Terminal in 1909.

The New Township remained New Haven's most populous neighborhood all through the nineteenth century, but its golden age ended about 1865 and growth

came to a complete halt around 1880. Industrialization, which had sparked its rise to importance, gradually came to dominate it to such an extent that many residents, particularly the most affluent, chose to move to quieter areas. Soon what had been fine homes were converted into tenements, and speculative housing made its appearance. New streets were opened, and many low–cost single and multifamily units were built.

As the wealthiest New Township residents moved away, Irish and then Italian immigrants replaced them. On Columbus Day in 1892 a copper statue of Christopher Columbus was unveiled in Wooster Square to commemorate the four hundredth anniversary of his landing in the New World. Seven years later St. Michael's Catholic Church purchased what had been the First Baptist Church on Wooster Square. By 1900 the residential sections of the New Township were inhabited primarily by Italians.

Wooster Square and the areas surrounding it went downhill badly during the first half of the twentieth century. Carriage manufacturing declined and then disappeared, and later, other industries came upon bad times, particularly during the Depression. Meanwhile high density utilization of residential structures resulted in progressive and eventually pervasive physical deterioration.

Fair Haven, the area between the Mill and Quinnipiac rivers, was always included in the Town of New Haven, but it did not become part of the city until 1870. By then it was a bustling waterfront community largely involved in oystering. The Fair Haven and Westville Railroad began operation in 1861, connecting those two outlying and rather remote communities with downtown New Haven, and this new horse–drawn transportation system caused an increase in Fair Haven's population and also in land values there. Newcomers settled at first along the two rivers and then began to fill in the previously unoccupied territory in between, until sometime in the 1880s the two waves of expansion met in the middle. The population, by then eighty–five hundred, grew to twenty thousand in 1910 and almost twenty–four thousand in 1930. The local economy became more diversified as over the years quite a few factories were built. There was also a visible change in the makeup of the population. Irish immigrants began moving into the neighborhood after 1850, and they were joined after 1880 by Italians and then by Poles. In 1930 almost two–thirds of the people living in Fair Haven were foreign–born.

Fair Haven Heights, on the east side of the Quinnipiac River, had been part of East Haven when that town was separated from New Haven in the eighteenth century. It was brought back into the Town of New Haven in 1872 and was included within the city in 1881. Oystering engaged the energies of the people living along and near the waterfront, while the top of the hill developed during the decades after the Civil War into an affluent suburb. There was little new construction there after 1910 and never any industry.

The area along the east shore of the harbor became part of East Haven in 1785, but was reacquired by the City of New Haven in 1881. The northern section, called the Annex, grew slowly as a residential neighborhood and managed to retain some

of its original rural character as late as 1900. A summer resort featuring cottages and several hotels developed after the Civil War around Morris Cove and toward Lighthouse Point. After the turn of the century it gradually lost that function as the hotels disappeared and the cottages were acquired by occupants who lived there year–round. A large piece of land straddling the New Haven–East Haven line was put to a new use in the 1930s, when the Tweed New Haven Airport began operation.

There was not much building directly north of the Green prior to the Civil War, but Quality Row along Elm Street and fine houses along and near Hillhouse Avenue and Orange Street up as far as Humphrey Street gave that hilly area a good start as New Haven's most elegant neighborhood. In spite of an important industrial complex on and around Audubon Street subsequent development was mostly residential. Northward expansion toward Hamden continued until by the time of World War II most of the land was filled with houses, a few early row houses, and later some apartment houses.

By contrast the lowlands to the northwest of the Green turned out to be a section of large factories and small houses. Many industrial operations located in Dixwell and particularly in Newhallville, the largest, as noted, being the Winchester Repeating Arms Co., which built its plant in 1870. These contiguous sections became thriving working–class neighborhoods, then after 1900 became congested and increasingly dingy, and deteriorated during and after the Depression into slums. Dixwell was by then about 50 percent black, and as the black community grew it expanded northward into Newhallville.

There was a large area west of York Street and south and west of the industrial lowlands that was largely unoccupied at the time of the Civil War but that grew thereafter into several fairly distinct neighborhoods. What is commonly referred to as the Dwight Street section experienced relatively early expansion as a residential and to some extent a carriage manufacturing quarter. Further westward, Edgewood remained semirural into the 1870s and was then gradually transformed into a densely populated, middle–income streetcar suburb with some commercial buildings and apartment houses added after World War I. Beaver Hills, lying to the north of Edgewood, was developed between 1908 and about 1950 as a community of moderate–priced but frequently well–designed single dwellings.

The low–income section south of West Creek became very densely populated during the latter decades of the nineteenth century by immigrants arriving from Italy and Eastern Europe. Employment was available in nearby factories, in railroad repair shops, and along the waterfront, but the housing was substandard and there was considerable crime. As the tenements aged after 1900, living conditions deteriorated further. Union Station, built in 1918, was intended to be the focal point of a splendid new street layout running from the railroad depot to the Green, which would have improved the appearance of the area dramatically. Unfortunately the plan was never executed.

City Point continued at its southern tip to be an oystering center, while Howard Avenue, running north from there to the Hill, became a fashionable boulevard lined with handsome houses. A horse–drawn railroad on Howard Avenue stimulated residential development of a less pretentious sort on the side streets until a few years before the turn of the century. Thereafter a few apartment houses were added, some buildings were converted for multifamily use, and the neighborhood became perceptibly less elegant than it had been.

Westville grew after 1865, acquiring a small hotel, several more factories, and an increasing population, but the center retained its village atmosphere while the rest of the area stayed genuinely rural. Attracted by this pastoral setting, the noted landscape designer and author Donald Grant Mitchell settled on a three–hundred–acre property along Forest Road and made significant contributions to the planning and subsequent improvement not only of his adopted neighborhood but of other parts of New Haven as well. Westville became part of the city as well as the town in 1897, and after that date it turned gradually from a self–contained hamlet into a modern residential community.

The outward thrust of population from the central parts of New Haven toward its edges was seen in Westville and elsewhere around the outskirts, and after 1920 families began increasingly to move out into the suburbs. The land within the city limits had simply filled up, and many areas had become unattractive. Commercial storefronts appeared in residential sections. Slums became progressively shabbier. The giant Cedar Hill classification yards of the New York, New Haven and Hartford Railroad spread until they covered a large portion of the Quinnipiac meadows. By midcentury the characteristic problems of the American industrial city were more than evident.

During the last forty years of the nineteenth century there was great interest in improving the usefulness of streets. Immediately after the Civil War the Court of Common Council quadrupled the budget of the street department. An important innovation was the use of Belgian block pavements, which were ordered for all the central streets.

Bridge building also received considerable attention during this period. Spans were replaced, repaired, and constructed over the West River, Mill River, and Quinnipiac River as well as in the upper area of the harbor. Tomlinson's Bridge, erected privately in 1796–98 where the Mill and Quinnipiac rivers enter the harbor, was purchased by the Town of New Haven, and funds were voted for its modernization.

The New Haven and Derby Railroad Co., formed to tap the business of the Naugatuck Valley, was incorporated in 1864 and began operation in 1871. With the permission of the Connecticut legislature the City of New Haven subscribed to two thousand shares of the capital stock. In 1878 a two–story, brick passenger depot with a mansard roof was erected at the corner of Meadow and Water streets.

The Shore Line Railroad Co. was also incorporated in 1864. It connected New Haven with New London, and it terminated originally in the Belle Dock area. This line was leased in 1870 to the New York and New Haven Railroad.

The City of New Haven also gave financial assistance to the New Haven, Middletown, and Willimantic Railroad Co., chartered in 1867. It was opened as far as Middletown in 1870 and reached Willimantic three years later. During 1875 it was sold under foreclosure and then reorganized as the Boston and New York Air Line Co.

During 1871 an act of the Connecticut legislature gave the Hartford and New Haven Railroad Co. the authority to merge into the New York and New Haven Railroad Co. Consequently a year later the New York, New Haven and Hartford Railroad Co. came into existence.

By August 1872 the principal lines into New Haven had been consolidated into a single system consisting of the New York, New Haven and Hartford and the Shore Line, which it operated. The depot built by the New York and New Haven in 1848 remained the city's most important passenger station until the erection of a new one called the Union Depot in 1874 at the foot of Meadow Street. The new structure gave evidence of the city's strategic position as an important rail center. New Haven was in fact the center of Connecticut's railroad system, and as it became more extensive local shipping activity declined.

The horse–drawn railways helped to bind New Haven's various neighborhoods. They also contributed to the growth of outlying areas by making the central business district accessible to suburban dwellers, stimulating the breakup of estate properties and the sale of relatively remote building lots. Although this new mode of transportation was introduced in the 1860s, its impact was not fully apparent until the industrial boom of the 1890s. The first electric trolleys went into service in 1892, and buses were introduced in 1900.

In 1872 a sewerage plan was prepared for New Haven by E. S. Chesborough, the city engineer of Chicago, who laid out the project so that there were five drainage districts. The city's location on a large plain only slightly above sea level made the design difficult in some areas, and existing railroad tracks further complicated the problem. The New Haven Electric Light Co. was organized in 1883, replacing a small predecessor firm, and in 1899 it was renamed the United Illuminating Co. The earliest street lights were in use by 1890.

New Haven became a world leader in communications in 1877 when a local man named George W. Coy built the first commercial telephone exchange. A year later he founded the New Haven Telephone Co. It merged in 1882 into the Connecticut Telephone Co., which in 1884 became the Southern New England Telephone Co. By that time New Haven had more than seven hundred phones in service, more than any other city except Boston, New York, Philadelphia, and Chicago.

Nineteenth–century New Haveners had for a long time been so proud of their central Green, their other squares, and their famous elms that they were slow to see any need for a large park of the kind then being laid out in other American cities.

Once the desirability of such an amenity was recognized, several locations were considered. There was talk of establishing a seaside park, but East Rock was the place finally selected for the first municipal recreation area. East Rock Park, created by an act of the Connecticut General Assembly in 1880, was planned for both New Haven and Hamden with the larger part in the latter community. A final flurry of quarrying took place there just before the area was acquired for its new purpose.

The actual beginning of the park dates from 1884, when New Haven acquired the rock itself through eminent domain. The site had previously been used as a refuge by a hermit, as a pleasure resort called the Mountain House, as a home for a silversmith, and then once again as a resort. The final proprietor was a flamboyant character named Milton J. Stewart, who eventually built an ark on top of the rock. This turned out to be an unnecessary precaution because the flood he feared never came. Donald Grant Mitchell prepared a development plan for the park, and the Board of Commissioners of East Rock oversaw its early development. This board was superceded in 1890 by the New Haven Park Commission.

Additional land acquisitions by the city and many private donations to the city over the years were necessary before East Rock Park could be completed: the total process took about half a century. One notable gift was made by Yale: a twenty–acre tract encompassing the College Woods, which had at one time been used by the college as a source of firewood. During 1886 and 1887 the Soldiers and Sailors Monument was built on the summit of East Rock, commemorating New Haven servicemen who had lost their lives in the American Revolution, the War of 1812, the Mexican War, and the Civil War.

The East Rock project aroused such interest and enthusiasm that New Haven embarked on a development program that continued for five decades and that resulted in one of this country's most distinguished park systems. Much of the credit for the high quality of the parks belongs to Donald Grant Mitchell, who laid out many of the new facilities, which were located in a variety of settings, some inland and others in wetland, shorefront, and mountainous areas. Unfortunately, not all of Mitchell's concepts were carried out, and most that were have by now been altered or destroyed.

The popularity of East Rock Park led to requests for better facilities in the western part of New Haven. The response was Edgewood Park, begun in 1889. Its development was facilitated by the move of the almshouse to the Springside neighborhood. Waterside Park on the northern shore of the harbor was created in 1890. Having been originally mostly mud flats, it took many years to fill and grade.

What became East Shore Park had been at one time part of the Quinnipiack Indian Reservation. This shoreland property was gradually acquired by the Townshend family in the 1800s, and then it was converted in the twentieth century into a public park. In 1890 Nathan Hale Park was opened and Fort Wooster was obtained as another park site.

Quinnipiac Park, located at the confluence of the Mill and Quinnipiac rivers into the harbor, was also begun in 1890. The area had been used as a military training

ground during the Civil War, when it was still called Grapevine Point. Clinton Park in the northern section of Fair Haven was added to the park system that same year. Still another addition dating from 1890 was Bay View Park on the west side of the harbor near City Point, which had been the site of another Civil War training ground.

West Rock Park, which began with Elijah Thompson's fifty–acre bequest in 1826, grew through subsequent contiguous acquisitions to six hundred acres. Its development as a park available to the public took place mostly between 1900 and 1930, when it was planted and paths, roads, and athletic fields were built.

West River Memorial Park was intended to commemorate World War I soldiers. Considerable time was required to fill its marshy soil. The Depression and World War II slowed down the project, and it never was completed as originally planned.

The United States government purchased land in 1804 at the point on the east side of the harbor and operated a lighthouse there until 1877. The shorefront then and thereafter was used for bathing and recreation, and the East Shore Amusement Co. long ran a number of concessions there. The City of New Haven bought the whole property in 1924 and turned it into Lighthouse Point Park. Use of the harbor and its shoreline for recreational purposes waned during the first half of the present century, expanding industry and commerce, landfill, and pollution all extracting their toll.

There had been another recreational area that was never part of the New Haven park system because it was operated by a private organization. Known originally as Brewster Park and later called Hamilton Park, it was located at Whalley Avenue and Norton Street, and it functioned from the year just prior to the Civil War until 1875, when it was sold at auction for eventual transformation into building lots.

Golf and tennis became popular sports during the last decade of the nineteenth century. In 1891 the then recently formed New Haven Lawn Club purchased a large tract of land south of Humphrey Street between Whitney Avenue and Orange Street, providing downtown New Haven with a home for tennis. The New Haven Golf Club opened its facilities in 1895 on rented property bounded by Prospect Street, Division Street, Winchester Avenue, and Goodrich Street. The club was formally organized in 1896, and at a later date it relocated in Hamden.

During the long period described in this chapter there was substantial alteration in the shoreline as the result of landfill, reaching from slightly north of Morris Cove on the east side of the harbor to close to City Point on the west side. Another topographical change was the almost complete obliteration of Pine Rock in the northwestern part of New Haven near Southern Connecticut State University. This resulted from traprock quarrying there, and East Rock might have suffered the same fate had it not become a park.

The City and Town of New Haven continued to coexist, but the city grew in administrative importance during the latter part of the nineteenth century, while the town lost relative position. In July 1870 the Fair Haven peninsula, previously part of the town only, was included within the city limits, leaving Westville as the

only area that remained exclusively under the town government. In 1881 the town was enlarged by the inclusion of what had been the western part of the Town of East Haven, consisting of the area east of the Quinnipiac River and along the eastern shore of the harbor. Once part of the Town of New Haven, this land had belonged to East Haven for nearly one hundred years, and its return gave New Haven fuller jurisdiction over the harbor and the Quinnipiac River. The city boundaries were expanded in 1897 to coincide with those of the town, and the latter government has since then been integrated into the administrative structure of the city.

The City of New Haven gained additional dignity and importance as the result of these changes, but it suffered a bitter loss of prestige in 1873, when it ceased to be co–capital of the state. A loss of territory had occurred earlier in the century, when in 1822 Orange, carved out of both Milford and New Haven, was established as a separate town. West Haven, previously part of Orange, was given township identity in 1921.

New Haven's population was estimated at slightly over 75,000 in 1884, making it the largest city in Connecticut and the twenty–sixth largest in the United States. There was an increase to over 100,000 by 1900 and 134,000 in 1910, and the population reached what proved to be its all–time high of about 163,000 at the time of World War II.

6 Decentralization, Decay, and Renewal, 1945–1988

The harbor was dredged in 1949 to make it usable for larger ships, and today the main channel from the sound to Tomlinson's Bridge has a depth of forty–five feet at mean low water. The City Point shoreline has access to deep water by way of the eight–foot West River Channel. There is a sixteen–foot channel up the Quinnipiac River to the Ferry Street Bridge and a twelve–foot channel up the Mill River to the Chapel Street Bridge. The harbor is protected at its mouth by three stone breakwaters built in 1910, and inside by another, smaller breakwater.

The quality of the water in the harbor is poor, the result of inadequate treatment of municipal sewage and a certain amount of industrial discharge. There have, however, been some recent encouraging developments. Better sewage treatment methods at the plants in Southington and Meriden, for example, have improved the quality of the water coming down the Quinnipiac River, and industrial waste disposal practices have become more sophisticated.

New Haven is today an important port, ranking first in Connecticut in terms of total tonnage handled and third in New England behind Boston and Portland, Maine. While there is considerable volume, the city's sea trade is very specialized, the principal import being petroleum and the only notable export being scrap metal. The two waterfront facilities equipped to handle general cargo are owned and operated by New Haven Terminal, Inc.

Oystering activity has diminished since World War II, but there has been an increase in recreational use of the harbor. The New Haven Yacht Club, founded in 1882 and the nation's second oldest such organization, disbanded in the late 1930s but had its charter reinstated by the legislature in 1967. In recent years the excursion boat Liberty Belle has become a familiar local sight, sailing several times a day from the city pier, which is built on part of the old Long Wharf.

Historic tradition and twentieth–century urbanism meet at the Green, which has remained the city's symbolic center as well as its actual physical center. Vast numbers of people visit it for recreational purposes or walk through it in the course of their daily rounds. It is also used for concerts, exhibits, meetings, and various other kinds of public events.

New Haven is known for its outstanding architecture, and much of its reputation has to be credited to Yale, whose approximately 140 buildings covering about 190 acres in the downtown area constitute a large and splendid outdoor museum of design dating from the mid–eighteenth century. These figures do not include athletic facilities in the western section of the city. Altogether the university owns about 800 acres of land in New Haven.

In 1947 Southern Connecticut State University, at that time known as New Haven State Teachers College, purchased a 37–acre tract in the northern part of New Haven to the west of the Beaver Pond neighborhood. There have been subsequent acquisitions, and the campus today covers approximately 150 acres. The move from Howe Street to the new location began in 1953, and by 1956 all operations and programs had been transferred. Two years later a pedestrian bridge over Fitch Street was completed, connecting the western and eastern parts of the campus. The institution's name was changed to Southern Connecticut State College in 1959, and in 1983 it was designated a university.

Albertus Magnus College, founded in 1925, now occupies about 50 acres in the north central section of New Haven adjacent to the city line and spilling over slightly into Hamden. The main campus is bounded by Huntington, Prospect, and Goodrich streets and Winchester Avenue, but there are additional buildings in the immediate neighborhood.

New Haven underwent vast changes after World War II, changes that had a profound effect on its character and its topography. Prosperity and improved transportation led many residents to move out to the suburbs, causing the population to decline from 164,443 in 1950 to 152,048 in 1960 and 137,707 in 1970. At the same time industry began to leave the Northeast generally and New Haven specifically, changing the latter gradually from a manufacturing center to a city increasingly dependent on service occupations. The exodus of people and jobs resulted in serious decay of the city's physical fabric. Meanwhile substantial numbers of unskilled newcomers, mostly blacks and Hispanics, were adding to New Haven's economic burdens and overtaxing some of its most rundown neighborhoods.

Richard C. Lee, elected mayor in 1953, initiated such a vigorous effort to restore the city to its former glory that it attracted great attention and was long considered a national model. His predecessor, William Celantano, had begun some initial planning, but it was Lee who undertook to build a new urban community on the remains of the old one. His spectacular renewal and redevelopment program coupled with superhighway construction got off to a fast start and generated a wave of change that continued through most of the 1960s.

Major emphasis was placed on the building of highways, a policy enthusiastically endorsed by the New Haven Redevelopment Agency. There were others who felt that these new roads served only the shoppers and commuters who had moved out of New Haven while isolating inner–city residents in concrete–bordered enclaves.

Interstate Highway I95, known as the Connecticut Turnpike, opened in 1958, running along the waterfront edge of the city. The State Highway Department built it on the landfill created by the dredging of the harbor nine years earlier, and the city undertook the Long Wharf Project in the area between the original shoreline and the new road. The project thus covered the area where Long Wharf had stood and also the spot where West and East creeks once met and flowed into the harbor.

The Oak Street Connector, running approximately in the bed of the old West Creek, was built in 1959, creating a vehicular link between the Connecticut Turnpike and downtown. The slum clearance that made the new route possible completely demolished the Oak Street neighborhood. Plans to extend the connector all the way to the Boulevard have never been carried out and may never be, although the land intended for that purpose has been acquired and cleared by the state. Both West and East creeks have disappeared, the latter forming the bed of the main railroad line running into New Haven from New York.

Interstate Highway I91 was constructed from north to south and reached New Haven in 1966. It rises high above the city's streets on a man–made embankment and cuts well to the east of Wooster Square, joining the Connecticut Turnpike at the harbor.

These highways provided access to the heart of New Haven, but if the redevelopment program was to succeed, there had to be some major attraction to draw shoppers back from the suburbs and nearby towns and cities. The centerpiece of the city's renewal effort, therefore, was the so–called front block project. The idea was to rebuild one block or several contiguous blocks near the Green, creating a new department store, a new hotel, a new office building, and new shops and parking garages. The plan turned out to be exasperatingly difficult to execute, and there were many delays and disappointments, but Mayor Lee finally convinced Macy's that it ought to establish a branch in New Haven. This new department store opened in September 1964, at which time construction of the rest of the project began.

New Haven's redevelopment effort was not confined to highway construction and the central business district. Wooster Square and the surrounding New

Township, classified in the New Haven Zoning Ordinance of 1926 as an industrial zone, was hard hit by the Depression, which left many factories vacant or reduced to marginal use. The neighborhood deteriorated into a slum, and early renewal plans called for its demolition, with I91 to go directly through the middle of where it had stood. Fortunately, further thinking resulted in one of the nation's first programs of residential rehabilitation in Wooster Square. The interstate highway was rerouted with the intention of making it a buffer between the neighborhood and an industrial and commercial area to its east.

The New Haven Historic District Commission was created by city ordinance in 1970 under the provisions of a state enabling act. That same year the Wooster Square area was designated as New Haven's first historic district, celebrating a neighborhood rich in heritage that had come down through the years without radical change to its residential structures and that was then renewed creatively with superb results.

One of the most visible results of redevelopment was landfill, which during these years changed the shoreline all the way around the harbor from City Point to Morris Cove. Other topographical changes resulted from improvements in the transportation system at Tweed–New Haven Airport, both in New Haven and East Haven, and at the railroad's Cedar Hill Freight Yard, in North Haven as well as New Haven.

Enormous amounts of federal and state funding had made possible all of these new highways and commercial, industrial, residential, and educational buildings. As the money available from Washington began to taper off in the late 1960s, the activity in New Haven gradually came to a halt. The program had always attracted criticism, some people feeling that the poor had been uprooted heartlessly and that six thousand housing units had been destroyed without the provision of an adequate number of replacements. On the other hand, renewal and redevelopment had very positive impact on Wooster Square, Fair Haven, and some other neighborhoods. The program had attracted national attention, and it remains a landmark in American urban history.

In the midst of all this destruction and creation many aspects of the physical city remained relatively unchanged. In particular a number of attractive residential neighborhoods retained their traditional look and characteristic appeal. Among these, certainly, were Westville, Prospect Hill, East Rock, Lincoln–Bradley–Trumbull streets, and Morris Cove.

Two tall buildings erected under private auspices during these years altered the city's skyline significantly. Yale's Kline Biology Tower, dating from 1964, is located at the head of Hillhouse Avenue behind the site where James Abraham Hillhouse's Sachem's Wood had once stood. The massive Knights of Columbus Headquarters Building, constructed three years later at North Frontage Road and Church Street, can be seen for miles as one approaches New Haven. Other large buildings put up by Yale during the Richard C. Lee years expanded the campus and changed the look of that part of the city. These include the Yale Art Gallery, David S. Ingalls Rink,

Morse and Ezra Stiles residential colleges, and the School of Art and Architecture. Then and subsequently banks have built new buildings or remodeled old ones for their offices, and new office buildings for utility companies have also added to the city's physical growth.

Biagio DiLieto, who became mayor in 1980, initiated a new wave of development, which is still in progress. Recognizing that only a limited amount of federal and state funding was available, DiLieto worked to draw private developers and investors into ventures sometimes initiated and always supported vigorously by the city administration. Yale became another partner in this network of collaboration between the private and public sectors when President Benno Schmidt made the dramatic announcement in 1987 that the university was committing $50 million for real estate investments designed to strengthen the economy of New Haven. Other catalysts in this drive to build up the city and make its future brighter have been the New Haven Downtown Council, whose role in many projects has been vital, and the New Haven Preservation Trust, which has worked constructively to encourage new development while retaining existing structures of architectural significance.

A considerable effort has been made to revitalize the area around the Green, beginning with the blocks at its southwest corner. The Shubert Theater, closed in 1976, was completely renovated and reopened on January 12, 1984, as the Shubert Performing Arts Center. The Roger Sherman Theater, also rebuilt and renamed the Palace Theater, reopened later that year. The Taft Hotel has been converted into an apartment house, and other nearby structures have been or will be prepared for a mixture of office and retail use. Much of this work has been executed by the Schiavone Realty and Development Corp., sometimes in partnership with other firms and the city.

The Rouse Co. of Columbia, Maryland, purchased the aging Chapel Square Mall on the south side of the Green and the adjoining office buildings in 1983 with the assistance of the city and a group of local corporations. A major renovation including some redesign was completed the following year.

The plan to rejuvenate the so–called Ninth Square, a thirty–acre area southeast of the Green that approximates the configuration of one of the original nine squares, dates from late 1982. A feasibility development program envisions the renovation of some existing structures, the removal of others, and some new construction that will result in a mixture of commercial, office, and residential use. After some delays McCormack, Baron & Associates, Inc. of St. Louis have been brought in as the designated developer, and they will work with a combination of owners and investors.

There has long been talk of a Government Center on the east side of the Green wrapped around what remains of the old City Hall. The project was initiated in the mid–1960s, and it was originally planned to include a new public library as well as all necessary city offices. Huge projected costs combined with dwindling financial resources made it impossible to undertake construction, and the scheme lan-

guished until 1980, when a task force appointed by Mayor DiLieto reviewed the proposal and recommended reducing it in size by about 50 percent. From this suggestion emerged a new design based on a new concept. The public library was eliminated to hold down the expense, and a commercial office tower was added to attract participation by developers, Chase Enterprises, Inc., of Hartford and Olympia York of Toronto, Canada. The mixed–use complex will stand as one of the most visible accomplishments of the DiLieto administration.

This ultimate Government Center design left unsolved the problem of how to give the public adequate downtown library facilities. The existing New Haven Free Public Library, facing the north side of the Green, had for almost eight decades been admired for its beauty, but it was in serious disrepair and had become much too small for its purpose. There was lively debate about whether to stay at that location or to build somewhere else. Finally, in 1987 a decision was made to rehabilitate and expand the old structure.

Another architectural treasure, the Federal Courthouse on the east side of the Green, was also at one point a candidate for demolition. In this case, too, admirers of the building saved it, and its handsome restoration was completed in 1985.

So much improvement of the built environment around the Green focused attention on the fact that the Green itself had become sadly dilapidated. In June 1985 Mayor DiLieto created a task force to develop a plan for its restoration and future maintenance. A design that will cost an estimated $4,900,000 has been agreed on, and the nonprofit Foundation for the New Haven Green has been formed to raise the money and supervise the project.

Another group, the Crypt Restoration Committee of the First Church of Christ in New Haven, is raising money to improve the condition of the gravestones under Center Church and to make that historically important and very unique place more accessible to the public.

There has been notable new construction along and immediately off Whitney Avenue north of the Green. Whitney Grove Square, an office building begun in 1985 at Grove Street with retail and garage space and adjacent luxury townhouses, was erected by the Carley Capital Group of Madison, Wisconsin, and local developer H. Pearce Co. More recently the Arts Council of Greater New Haven, working with Lawrence Properties of Bronxville, New York, has built a complex consisting of offices and shops along Whitney Avenue and housing and retail facilities on Audubon Street.

Development of the Fusco Corporation's Long Wharf Maritime Center, a mixed–use commercial and recreational area along the waterfront, began in 1984. The first phase was a thirteen–story office building with a 940–car garage, and other units are being added one by one. Meanwhile a number of other major projects in the downtown area but not contiguous to the Green have been undertaken or are under consideration.

It was recognized two decades ago that State Street required rejuvenation, demolition having eliminated most of the part of it that is adjacent to downtown

and heavy traffic, decay, and the movement to the suburbs having taken their toll along the outer stretches. A State Street Redevelopment and Renewal Plan was prepared in 1968 and modified in 1969 and 1979. Hoped–for improvements by the private sector in the downtown section have been slow to develop, but excellent results have been achieved by the Upper State Street Association, a revitalization partnership between the city and the residents that was organized in the late 1970s.

Improvement has been dramatic in recent years in Fair Haven also. Industrial growth, tenement construction, and the ravages of the Depression had hurt the neighborhood, while the locally important oyster trade was being undermined by pollution, starfish, and occasional major storms. By the early 1970s the area was physically deteriorated, but it retained its riverfront charm and some housing and commercial stock worthy of rehabilitation. The Quinnipiac River Historic District, established in 1978 and covering both banks of the river between the Grand Avenue and Ferry Street bridges, stimulated revitalization. Initially houses were improved by their owners one by one. More recently professional developers have been working on a larger scale, finding adaptive new uses for clusters of old structures and filling empty lots with new ones.

A great deal of New Haven's recent success has been based on collaborative efforts involving unusual partnerships, and Science Park, founded in 1981 in Newhallville, is an excellent example. This industrial site, once the Winchester factory and more recently the property of the Olin Corporation, has been converted into a center offering rental space and unusual support services to technology enterprises, particularly young and growing ones. The city, the state, and Yale are all involved in the venture, and a special incentive to prospective tenants is the offer of access to the university's research facilities and its science faculty. Over one hundred businesses are now housed in Science Park, and the list continues to grow.

New Haven is one of the nation's great medical centers, and frequent and dramatic expansion of the facilities of the Yale Medical School, Yale–New Haven Hospital, and the Hospital of St. Raphael have brought added strength to the neighborhoods in which they are located. The Air Rights Garage over the Richard C. Lee Expressway is another new asset in the Hill district, which remains, however, a section in need of enormous additional help.

City Point deteriorated after the oyster trade ended and Interstate Highway I95 destroyed most of Bay View Park, but there has been some recent revitalization. A number of older buildings have been rehabilitated, and the Harbour Landing condominiums, completed in 1983, have changed the local skyline and brought in new families.

The federal government, the State of Connecticut, and the City of New Haven have pooled their resources to renovate Union Station and to turn it into a regional transportation center. Some of the space has been converted for commercial and retail use, and a parking garage has been erected immediately north of the station itself.

One utility that used to be privately owned is now a public entity. The South Central Connecticut Regional Water Authority serves New Haven and operates the Eli Whitney Filtration Plant in Hamden and a network of fifteen reservoirs.

New Haven possesses an outer circle of major green parkland and recreational areas: 200–acre West River Memorial, 121–acre Edgewood, 627–acre West Rock, 22–acre Edgerton Gardens (most of which is in Hamden), 400–acre–plus East Rock (of which almost three–quarters lies in Hamden), 47–acre Bishop Memorial Woods, 20–acre Fairmont, the 141–acre Municipal Golf Course (mostly in East Haven), 17–acre Fort Wooster, 143–acre East Shore, 54–acre Nathan Hale and Fort Hale, and 84–acre Lighthouse Point. Also scattered through the city are Beaver Pond, the Green, Wooster Square, Long Wharf, Quinnipiac, and Clinton.

The construction of the Connecticut Turnpike in the mid–1950s obliterated Waterside Park on the northern shore of the harbor. Bay View Park on the western shore, as mentioned previously, substantially disappeared due to the same building activity.

Over the years East Rock Park has lost some land. During 1956 Wilbur Cross High School and adjoining parking lots and playing fields were constructed on parkland given by the park commissioners to the board of education. The Connecticut Highway Commission took 7.6 acres for Interstate Highway I91. The Save the Park Committee blocked the placement of a spur of I91 through the park to Whitney Avenue.

In addition to the larger parks there are small ones scattered through the city, such as the attractive Phelps Memorial Triangle on Whitney Avenue at Trumbull and the Triangle at Columbus and Congress avenues with its revolutionary patriots' memorial named Defenders Monument. Bushnell Park at Chapel Street and Derby Avenue is known as Monitor Park. There is a monument there to Cornelius S. Bushnell and John Ericsson, who designed and built the ironclad *Monitor* in 1861.

The population of the city has continued to decline, sinking to 126,109 in 1980 and 124,113 in 1985, making New Haven slightly smaller than it was seventy–five years earlier.

7 Epilogue

New Haven's seventeenth–century English settlers envisioned a large and prosperous city with an economy based on saltwater trade. The large, protected harbor seemed well suited to their purposes, and West and East creeks served well as the town's maritime arteries during the seventeenth century and the early part of the eighteenth. The long channel and the shallowness of the harbor, however, proved to be problems. Long Wharf was begun and then extended to compensate for the shallowness and for the constant buildup of silt on the harbor's bottom, and the advent of steam propulsion early in the nineteenth century reduced the difficulties

resulting from the long channel. In the long run New Haven proved to have a good if not a superb base for seaborne commerce, and it has at one time or another traded along the coast, to the West Indies, and to China and other faraway places.

For many years the harbor supported a local fishing industry and a related, much more important oystering industry. Industrialization, commercialization, and urban growth with their resultant pollution took a toll and diminished the viability of these activities, and today they are fighting for survival. Recreational use of the harbor has always been important and has been plagued by the same problems. There is today an increasing amount of constructive environmentalism, and the outlook for recreational use and commercial fishing including oystering is now improving.

Contemporary New Haven's deep–water channel and extensive breakwater system facilitates entry of the port's major import, petroleum products. The Mill and Quinnipiac rivers still provide waterborne transportation for some local industries and commercial activity.

The relatively flat New Haven plain accommodated the early grazing of livestock. When dreams of a great commercial city vanished, the settlers utilized the plain extensively for agriculture. Indian trails converged at New Haven. So did post routes and then a multitude of turnpikes. The city participated in the early–nineteenth–century canal craze with its Farmington Canal. At one time six railroad lines met at New Haven, and today it is a major highway juncture. Its strategic location on a harbor and this network of roads leading in many directions have facilitated growth and recognition as a transportation center. A moderate–sized airport has also added to the advantages resulting from a favorable location.

The local terrain has offered additional advantages. The surrounding hills and ridges gave a measure of protection from storms, as the large, protected harbor does for shipping. The relative flatness also made it easy to develop local transportation, whether roads or streets, horse or electric railways, or buses and automobiles.

The central Green and the area surrounding it have always been New Haven's psychological center and the location of a continuing concentration of governmental, commercial, religious, educational, and cultural activities. An extensive park system gives to many parts of the city an atmosphere of openness. Large educational institutions provide increasing opportunities in a variety of ways but also from time to time create questions about land utilization and municipal finance.

As American industry grew in the nineteenth century, it flourished at New Haven. Readily available water and rail transportation were significant factors, as was a population of immigrant workers. Rapid subsequent urbanization brought with it substantial physical decay.

Intensive modern–day redevelopment and renewal have changed New Haven's skyline and also some street patterns and land formations. Interstate Highway I91 to Hartford was constructed on a man–made embankment that obliterated much of Franklin Street. The Oak Street Connector was built on a man–made embankment

at its intersection with the Connecticut Turnpike. It then followed an excavated course into the central city, destroying Oak Street in the process. The Connecticut Turnpike running along the western side of the harbor also rests on a man–made base. Some neighborhoods have been demolished, some preserved. The new highways have either isolated or protected neighborhoods, depending on one's philosophy. The most significant landfill area is the Long Wharf Redevelopment Project adjacent to the harbor's western shore.

Today's declining New Haven population is a relief to some who felt overcrowded and pushed in the mid–twentieth century. Smaller can be more beautiful.

The lay of the land attracted the original English settlers, and it molded the growth of town and city. In the modern era man is increasingly reshaping the shoreline and the surface by landfill and removal, highway construction, and other building activity. Local topography and topographical change have had a profoundly important influence on the development of New Haven.

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